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A.M.A. CONVENTION • KANSAS CITY, MO. • MAY 11-15, 1936

Frequent Gynecologic Disorders

THE April Number of the *"Surgical Clinics of North America"* comes from the great hospitals of Philadelphia. It is *genuinely clinical throughout!*

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Complete Contents in SAUNDERS ANNOUNCEMENT on Page 3

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THE PROGNOSIS IN RENAL CARCINOMA

AND THE CLINICAL AND PATHOLOGIC DATA AFFECTING IT

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For the purpose of clinical consideration, malignant tumors of the kidney should be subdivided into two groups: those which have their origin in the renal cortex and those which arise from the renal pelvis.

In a survey of 283 patients subjected to nephrectomy for carcinoma of the renal cortex at the Mayo Clinic, Judd and Hand [1] reported that seventy-four, or 26 per cent, were alive and well at the end of five years. Although such favorable results may be influenced by operative technic, they probably are affected more by the histologic character of the tumor and by the extent to which the malignant process has progressed. A study of the pathologic and clinical factors conducive to longevity in these cases is of much clinical interest. What are the data derived from histologic examination of the tumor, and what are the data observed on physical examination or in the course of urographic visualization which influence the prognosis?

PATHOLOGIC DATA

It is not generally recognized that tumors of the renal cortex are of common occurrence. Robertson [2] reported that, in routine studies of the kidney made at necropsy, some form of renal neoplasm is found in approximately 10 per cent of adult subjects. Most of these tumors are small, varying in size from 1 or 2 mm. to several centimeters. Although on section the histologic structure usually is described as benign, nevertheless such tumors are potentially malignant, and in some cases a lack of cellular differentiation is found which makes them actually so. Some of these tumors may become quite large and the cells may acquire a malignant character without producing any clinical manifestations. The histologic structure of renal neoplasms observed at operation is quite different and with few exceptions they give definite evidence of malignancy.

The prognosis in cases of carcinoma of the renal cortex is largely dependent on the degree of cellular differentiation, as suggested by Broders.[3] Although there are many variations in the morphologic characteristics and arrangement of cells and in manner of growth of malignant tumors of the kidney, for practical purposes renal tumors should be regarded as just so many variations of renal carcinoma, and they should be graded in degree of malignancy according to the widely accepted criteria of cellular differentiation. This index was applied by Hand and Broders [4] in a study of tissue removed from 193 patients operated on for renal carcinoma at the clinic, with a degree of accuracy which proved its value in a striking manner. As might be expected, the average postoperative length of life was found to be distinctly longer in cases of tumors of the lower grades of malignancy, and only an occasional patient with a tumor of grade 4 was alive five years after nephrectomy. It was also found that the duration of preoperative symptoms was much longer in cases of tumors of grades 1 and 2, and that the duration diminished as the degree of malignancy increased. The importance of such gradations in determining the prognosis in cases of renal neoplasm is not fully appreciated.

Although from a prognostic standpoint all malignant tumors of the renal cortex may be regarded as carcinomas and may be graded according to evidence of malignancy, there are variations in the gross appearance and histologic structure which justify further classification. The most common form of cortical neoplasm observed is the adenocarcinoma, which is commonly called hypernephroma. Its gross appearance, color, apparently circumscribed localization and the papillary arrangement of its cells are quite distinctive. Adenocarcinomas may further be distinguished by the microscopic appearance of their cytoplasm, which may be either clear or granular. A review by Foulds, Scholl and Braasch [5] of patients operated on for adenocarcinoma made up of clear cells revealed that the postoperative life of such patients was distinctly longer than when the cells were granular. Another form of renal carcinoma frequently observed has been called "alveolar" carcinoma. The gross appearance of these tumors is quite different, and there is usually more diffuse involvement of the entire kidney. Microscopic examination shows that the character and arrangement of the cells are also different than in adenocarcinoma. Further differentiation between these two conditions is made possible by comparison of the clinical course as well as the urographic data. The slow growth and mild symptoms which usually characterize hypernephromas are in contrast to the clinical data observed in cases of alveolar carcinoma. Similarly, the postoperative length of life of patients with the former type of lesion averages almost twice as long.

From the Section on Urology, the Mayo Clinic.

1. Judd, E. S., and Hand, J. R.: Carcinoma of the Renal Cortex with Factors Bearing on Prognosis, Arch. Int. Med. **44**: 746-771 (Nov.) 1929.
2. Robertson, H. E.: Personal communication to the authors.
3. Broders, A. C.: The Grading of Carcinoma, Minnesota Med. **8**: 726-730 (Dec.) 1925
4. Hand, J. R., and Broders, A. C.: Carcinoma of the Kidney: The Degree of Malignancy in Relation to Factors Bearing on Prognosis, J. Urol. **28**: 199-216 (Aug.) 1932.
5. Foulds, G. S.; Scholl, A. J., and Braasch, W. F.: A Study of Histology and Mortality in Renal Tumors, S. Clin. North America **4**: 407-424 (April) 1924.

CLINICAL DATA

Among the data observed on physical examination which should be of importance in affecting the prognosis in cases of renal carcinoma the following may be included: the size of the tumor and the degree of fixation, evidence of toxemia, such as vascular changes, evidence of metastasis, and the data obtained by means of roentgenography. A consideration of these data, combined with the conditions found at operation and the histologic study of renal tissue, should be of value in indicating the prognosis.

Physical Examination.—A huge tumor with fixation should indicate a poor prognosis, whereas in the case of a small, movable tumor the postoperative results should be better. Curiously enough, however, the postoperative course in cases in which tumors are large is often unusually good. It is of interest to note that in a group of twenty-four patients who lived ten years or more following nephrectomy, fourteen, or 58 per cent, of the tumors removed were recorded as large, four as medium, and six as small. However, in a group of forty-seven patients with inoperable growths, a fixed tumor was found in forty-four, and forty-two died within two years following exploration. The degree of fixation is apparently of greater prognostic importance than the size of the tumor. It is surprising how frequently a tumor of large size cannot be palpated, either because of its location under the ribs or because of a muscular or adipose abdominal wall.

The hematologic picture in cases of renal neoplasm is not distinct from that in cases of malignancy in other portions of the body. As with malignant conditions in general, a low value for hemoglobin usually indicates toxemia of malignancy and a poor prognosis. A renal tumor that has been present over a period of years without producing clinical evidence of toxemia will usually show on section a low grade of malignancy.

Hypertension.—The frequency with which hypertension is observed in association with hypernephroma was first noted by Neusser[6] (recently referred to by Oppenheimer and Fishberg[7]), and he was under the impression that the hypertension was caused by absorption of some secretion from the tumor. He suggested that because of the possible suprarenal origin of such tumors they might be the source of tumor cells with suprarenal elements. Other observers have called attention to clinical evidence of abnormality in the vascular system, which was apparently caused by some specific absorption. Telangiectasis of the superficial blood vessels of the face is frequently noted in cases of hypernephroma. Dilated blood vessels in the abdominal wall and varicocele of recent origin, usually on the left side, are observed frequently, probably being caused by mechanical obstruction of the venous circulation. An increased pulse rate was noted in several cases in which the temperature was normal and in which there was no evidence of infection. The possibility of fever occurring in cases of hypernephroma has been noted by Creevy.[8]

In reviewing the blood pressures of forty patients who were operated on for renal neoplasms in 1933 and 1934, it was found that the blood pressure was within normal limits in twenty-six cases and was definitely increased in fourteen. In several cases the hypertension had apparently been present for several years prior to the onset of symptoms caused by renal tumor. Other clinical data noted would indicate that the hypertension was of the essential type. In those cases in which the blood pressure was read within a year after removal of the tumor, a definite decrease was noted in comparatively few of them; in most cases the blood pressure remained stationary. A recent clinical study by Horton and Morlock,[9] in which they compared the hypertension occurring in cases of hypernephroma with that in other forms of renal tumor, failed to show an increased incidence of hypertension in cases of hypernephroma or any difference in the postoperative reduction in blood pressure. Of the patients who lived five years after operation, four had systolic blood pressures of more than 200 mm. of mercury. It is evident from these cases that hypertension does not materially affect the prognosis.

The possibility that renal adenocarcinomas might harbor elements of the adrenal gland which could be discovered on chemical examination of the tissue of the tumors was suggested independently by Ferguson,[10] by Beer[11] and by one of us (Braasch).[12] In 1932 Kendall[13] examined two tumors but failed to find any evidence of adrenal secretion. Following his development of chemical methods of recognizing adrenal cortex secretion, he has examined three other renal adenocarcinomas but has likewise failed to find any definite evidence of adrenal secretion.

Although occasionally one gains the impression on clinical examination that renal adenocarcinoma is associated with hypertension of recent origin, it is evident from the postoperative clinical data and from chemical analysis of the tumor that no elements are present which would cause increased blood pressure.

Metastasis.—Metastasis is common in cases of renal carcinoma and it must be carefully searched for in every case. It occurs less frequently in the case of growths of a low grade of malignancy, and then only in the late stages. Metastasis often is observed in cases in which symptoms are not suggestive of renal involvement or symptoms of recent origin. A review of the specimens removed from metastatic tissue for biopsy in most cases revealed carcinoma of grade 3 or 4. In Hand and Broders' series of 193 cases in which operations were performed at the clinic for renal carcinoma, evidence of metastasis was found in the course of preoperative and postoperative physical examination, at operation or at necropsy in ninety-eight cases. Although it is generally believed that renal carcinoma usually metastasizes through the blood stream, lymphatic metastasis was found in seventeen of these ninety-eight cases. The involved lymph nodes were found most frequently in the renal and retroperitoneal regions, and they were so situated that they could be demonstrated on physical examination in only three cases. Visceral metastasis occurred in fifty-six cases, the most common site of involvement being the lungs, followed in order of frequency by the liver, brain and spinal cord.

The site of metastasis in cases of renal carcinoma is so frequently in the lungs that thoracic roentgenography should be made a routine procedure in every case of

6. Neusser, Edmund, in Nothnagel's Spezielle Pathologie und Therapie, Vienna **18**: 71, 1898.
7. Oppenheimer, B. S., and Fishberg, A. M.: The Association of Hypertension with Suprarenal Tumors, Arch. Int. Med. **34**: 631-644 (Nov.) 1924.
8. Creevy, C. D.: Adenoma of the Kidney: Report of a Case with a Discussion of Its Relationship to Carcinoma (Hypernephroma), Am. J. Cancer (supp.) **15**: 2309-2318 (July) 1931.
9. Horton, B. T., and Morlock, C. G.: Unpublished data.
10. Ferguson, R. S.: Personal communication to the authors.
11. Beer, Edwin: Personal communication to the authors.
12. Braasch, W. F.: Personal communication to the authors.
13. Kendall, E. C.: Personal communication to the authors.

suspected renal neoplasm. In this way pulmonary metastasis frequently will be discovered in cases in which there are no pulmonary symptoms or any other clinical evidence to suggest it. On the other hand, early and minute pulmonary metastasis sufficient to cause mild symptoms suggestive of respiratory infection may be observed which is not apparent in roentgenograms made of the thorax. Cases occasionally are observed in which roentgenographic examination of the thorax was reported as negative and yet, at necropsy, made shortly after, metastasis is found in the lungs. When pulmonary metastasis does occur, it is usually found in both lungs. In the course of routine roentgenographic examination of the thorax, conditions are occasionally observed which may easily be confused with metastasis. Although the roentgenographic evidence of thoracic metastasis usually is quite definite, areas of consolidation are nevertheless sometimes observed in roentgenograms of the thorax which are of a doubtful nature, and a positive diagnosis may be of questionable value.

A number of recent articles have referred to the possibility of recovery from pulmonary metastasis. In fact, this possibility has been accepted in practice to such an extent that some surgeons have advised nephrectomy for renal carcinoma in spite of definite evidence of pulmonary metastasis. A review of six cases in which the patients were subjected to nephrectomy notwithstanding roentgenographic evidence of thoracic metastasis discloses that all the patients were reported to have died within one year following operation, and in most cases after several months. It is possible that in exceptional cases metastasis may be confined solely to the pulmonary region; however, this would occur so rarely that it is questionable whether one would be justified in advising nephrectomy in the presence of definite roentgenographic or clinical evidence of pulmonary metastasis.

Bony metastasis, generally believed to be of frequent occurrence, was found in but 11 per cent of Broders and Hand's cases. Because of its superficial localization it is observed more frequently in the course of general examination than other types of metastasis. The patient frequently has no symptoms suggestive of renal involvement. Although there was no predominant localization in the osseous system, the more frequent involvement of the humerus and spinal column in this series is noteworthy.

Metastasis in the ureter was found in two cases in this series. Although of frequent occurrence in cases of epithelioma of the renal pelvis, it is rarely observed in association with cortical neoplasm. It is possible that hematuria, occasionally observed as a late postoperative complication following nephrectomy for renal carcinoma, may be caused by ureteral metastasis. Metastatic involvement of the suprarenal gland was found in two cases, in neither of which were there any symptoms or clinical data suggestive of suprarenal disease.

Roentgenographic Data.—The value of the simple roentgenogram in the diagnosis of renal neoplasm is not fully appreciated. A careful survey of the renal regions in the simple roentgenogram frequently will give data of considerable importance. Unilateral increase in size or irregularity in the outline of the renal shadow should suggest the possibility of renal tumor. With accentuation of the renal outline, such as occurs in the excretory urogram, these data may be of increased value. In the course of routine roentgenography, the renal outline, unfortunately, may be so indefinite that the presence of abnormality is often overlooked.

The incidence of shadows in simple roentgenograms, caused by areas of calcification in the tissue of the tumor, is of much clinical interest. In a series of tumors of the renal cortex that were removed, roentgenographic evidence of calcification in the tumor was found in seven cases. It will be necessary to distinguish these shadows from those caused by lithiasis and from similar shadows frequently observed in cases of renal tuberculosis. The absence of any clinical, cystoscopic or urographic data suggestive of either lithiasis or tuberculosis usually would exclude these conditions. The deposit of calcium that occurs in cases of renal neoplasm is irregular in consistency and is usually confined to only one or two areas. In one case observed, however, calcification was widely scattered throughout the tissue of the tumor. It is of interest to note that, of the seven patients just mentioned, all but one lived more than three years and four were alive at the end of five years. It may be inferred, therefore, that the evidence of calcification is a favorable indication. The diagnosis of neoplasm frequently can be inferred in the presence of coincident areas of calcification in the simple roentgenogram and unipolar irregularity of the renal outline.

Urography.—The value of the urogram in the diagnosis of renal neoplasm has long been recognized. However, with the development of urographic technic the standardization of interpretation, the discovery of innocuous mediums for visualization, and particularly since the advent of excretory urography, it has become an essential and accurate method of diagnosis. The various types of deformity observed in the urogram in cases of renal neoplasm may be summarized as follows: (1) deformity characterized by tapering elongation or obliteration involving single or multiple calices, (2) partial or complete obliteration of the renal pelvis, (3) pyelectasis, with an irregularity in outline, and (4) displacement of the renal pelvis or upper segment of the ureter.

Involvement of but one or two calices, characterized by elongation and a tapering constriction of the terminal endings, is typical of hypernephroma and when present the diagnosis usually can be made. Irregular involvement of all the calices, a filling defect and partial obliteration of the lumen of the pelvis are suggestive of tumor of a high degree of malignancy, and these changes are more frequently observed in cases of alveolar carcinoma or epithelioma of the renal pelvis. Complete obliteration of the pelvis can easily be confused with a closed hydronephrosis. Minor degrees of deformity in the calices, such as crescentic flattening, frequently observed with renal cyst and polycystic kidney, are sometimes found in cases of localized neoplasm. It has been claimed that clinical differentiation between simple cyst and renal neoplasm may be possible by observing the patient over a period of months for evidence of progressive change in the pelvic outline, such as might occur with neoplasm. The rate of growth of a hypernephroma, however, may be so slow that such differentiation is impossible. Because of the possibility of error in the clinical and urographic differentiation between renal cyst and neoplasm, surgical exploration usually is necessary.

In a recent review of 135 cases in which operation was performed for renal neoplasm it was found that

inaccurate interpretation of the urograms had been made in seventeen. In six, however, the diagnosis had been qualified as being either renal neoplasm or renal cyst, leaving eleven cases in which the diagnosis was definitely erroneous. A diagnosis of hypernephroma was made and simple cyst was found in two instances. A diagnosis of polycystic kidney was made in one case and it proved to be hypernephroma; in another case the diagnosis was reversed. Deformity in the urogram caused by cortical tumor and polycystic disease may be quite similar, and in doubtful cases the presence of abnormality in the pelvic outline of the second kidney usually will identify polycystic disease. In one urogram, made in a case of polycystic disease, however, there was no evidence of deformity to be observed in the pyelogram made of the other kidney. In four cases the urogram suggested the presence of renal neoplasm, and on surgical exploration the lesion was found to be extrarenal. Pressure and displacement from extrarenal tumor sometimes will cause abnormality in the outline of the pelvis suggestive of renal neoplasm. In one case the symptoms and apparent obliteration of the pelvic lumen suggested renal neoplasm, but on exploration a closed hydronephrosis was found. It may be difficult to identify the nature of an abdominal tumor when any visualization of the renal pelvis is impossible. The presence of shadows suggestive of calcification caused an incorrect diagnosis in two cases of hypernephroma. A circumscribed area of renal tuberculosis was found in one case in which there was little or no evidence of infection in the urinary tract. In another case exploration revealed a soft stone situated in the end of a calix which had caused deformity of the pelvic outline suggestive of neoplasm.

Excretory Urography.—The value of the excretory urogram in the diagnosis of renal neoplasm is not fully appreciated. It was first thought that its use in this field was limited and that a retrograde urogram usually would be necessary for accurate diagnosis. However, in thirty-five cases of renal tumor in which excretory urography was employed in the last two years we found that the evidence was sufficient to make a diagnosis in twenty-five. In the other ten cases it was necessary to make a retrograde pyelogram in order to secure adequate visualization of the deformity. Unless there is detailed visualization of the pelvis and calices in the excretory urogram, it would be dangerous to assume that the possibility of renal tumor was excluded, and a retrograde urogram should be made. The increasing degree of accuracy in the recognition of renal neoplasm by means of excretory urography should warrant its routine employment in the differential diagnosis of abdominal tumors.

VALUE OF RADIOTHERAPY

Roentgen therapy in cases of renal neoplasm has been applied both before and after operation. Its value in postoperative treatment has not been very convincing. Although many of those patients who have lived three years and longer have had postoperative radiotherapy, the much larger number who have died within a year or two following operation in spite of radiotherapy makes the procedure of debatable value. In recent years, preoperative irradiation of the tumor has been urged by a number of observers. While our experience with such treatment has not been extensive, we have found it to be of greater value for tumors with tissue of embryonic origin than for adenocarcinomas. It is of course necessary to wait two months following irradiation before surgical removal is attempted.

SUMMARY AND CONCLUSIONS

As an index to prognosis and in the interest of simplified terminology it would seem best to regard all malignant tumors of the renal cortex as carcinomas and to grade them according to the degree of cellular differentiation.

From a clinical point of view, carcinoma of the renal cortex may be divided further into two groups which have distinct clinical characteristics; namely, adenocarcinoma (hypernephroma) and alveolar carcinoma.

Although there may be various factors, such as metastasis, which can modify postoperative results, the prognosis usually will conform to the histologic evidence of malignancy.

Metastasis occurs most frequently with renal tumors of the higher grades of malignancy and may be present without causing clinical evidence. Lymphatic extension is a frequent occurrence. Metastasis is found most often in the lungs, rather infrequently in the osseous system. Although the progress of the disease in the presence of pulmonary metastasis may be delayed by nephrectomy and irradiation of the lungs, postoperative results indicate that the chance for recovery is so slight that operation is not justified. It is possible that the roentgenographic evidence of pulmonary metastasis in some of the few cases in which patients were reported as having recovered was incorrectly interpreted.

Calcification of tissues in cases of renal adenocarcinoma is a frequent occurrence and indicates a favorable prognosis. Urographic evidence of widespread involvement of all calices and of the pelvis indicates a high grade of malignancy and a guarded prognosis. The excretory urogram will give accurate information with regard to the presence of renal neoplasm in a high percentage of cases. Its routine use should be more frequent in the identification of abdominal tumors.

Although clinical data suggest that suprarenal elements may be included in some hypernephromas to account for the vascular manifestations such as hypertension and telangiectasis, neither chemical analysis of the tumors nor postoperative clinical data corroborate such an assumption.

While the size of the tumor alone has no bearing on the late postoperative results, nevertheless a large, fixed tumor, together with a short history and evidence of marked toxemia would indicate a bad prognosis and would accordingly render the advisability of operation questionable.

Fuel Values of Foodstuffs.—The energy values of many of the proteins, fats and carbohydrates have been determined very accurately. Averaging the results for each group of foodstuffs, correcting in all cases for average losses in digestion, and in case of protein correcting further for the particular way in which it is burned in the body, we obtain the following physiological fuel values:

Carbohydrate: 4 calories per gram, or 1,814 calories per pound
Fat: 9 calories per gram, or 4,082 calories per pound
Protein: 4 calories per gram, or 1,814 calories per pound

These values are intended to show the average amounts of energy actually made available to the body for each gram (or for each pound) of carbohydrate, fat and protein contained in the food. It will be noted that proteins and carbohydrates have, weight for weight, the same fuel value; while fat is a much more concentrated fuel, having two and one-fourth times the energy value of an equal weight of protein or carbohydrate.—Sherman, H. C.: Food and Health, New York, Macmillan Company, 1934.

A SPECIAL FORM OF FUNCTIONAL PSYCHONEUROSES APPEARING IN AIRPLANE PILOTS

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The clinical material on which this study was based consisted of 163 unselected airplane pilots. Their ages ranged from 22 to 50 years inclusive, their flying experience from one to eighteen years and their total flying time from 400 to 5,680 hours.

The data presented were derived from three principal sources; namely, close personal observation of each individual for from six months to three years, annual and semiannual physical examinations for flying, and professional attendance on all accidents and illnesses occurring in this group.

HISTORICAL

Among pilots of all countries involved in the World War there was an enormous percentage invalided because of functional nervous disorders. Probably the best description of these cases was presented by H. Graeme Anderson [1] of England in 1919. Anderson recognized and described the various neuroses that occurred and they were admittedly no different from functional neuroses in other branches of the service or those found in civil life. Owing to the fact, however, that his cases developed as a result of flying, he coined the term "aeroneurosis" and grouped all functional nervous disorders occurring in aviators under that heading.

The remaining authors of that period who described the same types of cases agreed with Anderson on the nature of these disease processes but coined various other descriptive terms, among the most prominent of which were "aeroasthenia" [2] "flying stress," "aviator's neurosthenia" and "staleness."

It is believed that Anderson's term "aeroneurosis" (aero, combining form from the Greek ἀήρ, ἀέρος, air + neurosis, from Greek νεῦρον, nerve) though applied here to a distinctly different type of entity from those he described, is the most appropriate and will be used in this paper.

SYNONYMS

"Chronic fatigue," "staleness," "aviator's stomach," "flying stress," "aeroasthenia," "flying sickness," "aviator's neurosthenia" and "fatigue" are synonyms.

DEFINITION

"Aeroneurosis" is a chronic functional nervous disorder occurring in aviators, characterized by gastric distress, nervous irritability, fatigue of the higher voluntary mental centers, insomnia, emotional instability and increased motor activity.

ETIOLOGY

A. *Predisposing Causes.*—1. Sex: Only male pilots have been observed. It is believed, however, that under the same conditions females, being relatively more unstable, would be more frequently affected.

2. Age: Age, as such, is probably not an important factor except indirectly. Since the stress of flying is one of the fundamental causes of the disorder, it follows that it cannot occur until flying training has been completed, which is usually not under the age of 22. Even then, in my experience, there is an interval of years before the disease makes its appearance. In the series studied, the earliest case found was that of a pilot, aged 27, after four years of flying. From that age on, the incidence rapidly increased through the years of greatest stress and then gradually increased further in the upper age brackets, as shown in table 1.

The complete explanation of this age incidence is given later, and it will be merely noted that it depends principally on those economic, social and biologic changes that come about usually in the age period 25-40.

3. Build: All of the cases noted, except one, occurred in men of a medium or slender build. This, however, is of no significance, since it is a characteristic of the group that the conformations were predominantly of that same type.

4. Heredity: Strictly speaking, heredity is not a factor. By a process of rigid selection by trained examiners all candidates for flying training who show an unsatisfactory heredity are rejected. Furthermore, those who present a satisfactory family history but who for any reason do not possess a marked nervous stability are quickly detected in training and eliminated.

Relatively speaking, however, there is in every aviator some instability or otherwise he would be nothing more or less than a clod. On this basis it has been found that those with the greatest inherent instability are the most affected.

TABLE 1.—*Frequency of Occurrence by Age Groups*

Age Groups	Total Number	Cases	Per Cent
22-29	135	4	3
30-39	20	10	50
40-49	7	4	57
50-59	1	0	0
Totals	163	18	11.04

5. Social Status: Since the group under consideration is by selection and occupation of the same general social status, it is impossible to do more than note this and to make comparisons within the group in which there are variations.

In this series all the men were above the average in intelligence, lived in comfortable surroundings and engaged in a highly dangerous occupation.

Of those affected, four, or 18 per cent, were single, while eighteen, or 82 per cent were married. Of those married, three, or 17 per cent, had no children, while fifteen, or 83 per cent, had one or more.

Economically, there was sufficient income for the comforts of modern life. The fact that pay increased with years of service could not be particularly significant, owing to the fact that the expense of living increased in proportion to the increase in members of families.

6. Individual Personality: In all cases observed there were certain striking personality characteristics common to the group. As already mentioned, there was a relative instability as compared to unaffected individuals. They were without exception predominantly extravertive. Professionally they constituted the finest type of pilot, having a great amount of courage, alertness, energy and vitality.

Personally, they were intense, generous, warm hearted, friendly, devoted to duty and family and, in general, a high type of individual. Their actions were

1. Anderson, H. G.: The Medical and Surgical Aspects of Aviation, London, Oxford Medical Publications, 1919.
2. Wells, H. V.: The Flying Service from a Medical Point of View, J. Roy. Nav. M. Service **1**: 55-60, 1915; Some Airplane Injuries and Diseases, with Notes on the Aviation Service, ibid. **2**: 65-71, 1916.

frank and vigorous, their feelings ruled the intellect more than good judgment, and their feelings were devoted to those about them.

B. *Exciting Causes.*—Under this heading are included those factors which are considered to be a cause of the actual breakdown. In addition, a brief consideration of two other factors is introduced here for the sake of completeness. The first one deals with the possibility of debilitating states as an exciting cause, as so frequently happens in the other neuroses. The second one deals with a factor that may have some influence but, owing to the lack of clinical pathologic proof, it is mentioned only as a field for further research.

1. Debilitating States: As might be expected, considering the close medical supervision and frequent physical examinations, pilots are kept remarkably free from debilitating conditions. The use of intoxicating liquors and tobacco among those affected was similar to that among those unaffected and is not considered to be of any significance. Focal infections were carefully watched for and treated or removed immediately on detection. In this series, therefore, it is possible to state definitely that debilitating conditions were not an exciting factor.

TABLE 2.—*Harmful Physical Agents and Their Effects*

Physical Agent	Primary Effect	Secondary Effect
Carbon monoxide poisoning..	Anoxemia	Nerve tissue destruction
Oxygen want.....	Anoxemia	Nerve tissue destruction
Pure oxygen inhalation.....	Irritation, congestion and edema of lungs; irritative pneumonia	Anoxemia and nerve tissue destruction
Head trauma.....	Concussion, laceration, edema, and hemorrhage of the brain	Nerve tissue destruction
Centrifugal and centripetal forces	Pressure, congestive edema, hemorrhage of brain	Nerve tissue destruction
Speed.....	Not known	Not known
Barometric pressure changes..	Not known	Not known

2. Physical Agents: I believe that the disease under discussion is partially an organic as well as a functional nerve disease. While there is strong presumptive evidence to this theory, it is deemed advisable to refrain from making definite statements until clinical or pathologic proof is available.

In table 2 is a list of the harmful physical agents to which pilots are frequently subjected and the primary and secondary effects. All the effects noted have been shown to occur under similar conditions of exposure, both by clinical pathologic observations in human beings and by animal experimentation.

3. Emotional Stress: Emotional stress is considered the principal etiologic exciting factor. A review of the existing causes of emotional stress among pilots at once discloses their number and intensity.

(*a*) Biologic Changes. Every normal human being passes through certain natural biologic phases of life which exert a marked influence on his behavior.

In youth man normally is possessed of an abundance of vitality and vigor, has a zest for adventure, shrinks from responsibilities, is fired by enthusiasm and shows a reckless courage born of inexperience. As youth passes, he grows more conservative, establishes a home, creates a family, assumes responsibility and girds himself for the struggles of self and race preservation and to acquire economic and social security.

He anticipates a slow but steady advancement in his chosen profession with a corresponding increase in compensation until retirement or disability places him on the retired rolls.

Few pilots are able to pass through this normal course of events but are thwarted again and again by circumstances over which they have no control. How and why these normal biologic processes are disrupted will be shown in the discussion to follow.

(*b*) Physiologic and Physical Changes. Regulations specify the physical qualifications for pilots. These qualifications are detailed and rigid and they demand almost perfect physical conditions for compliance. They serve as a guide in the selection of cadets for flying training and apply equally to the graduate pilot. The pilot of 60 is expected to qualify under the same standards as the lad of 20. Obviously, physiologic changes intervene which make it impossible for the older men to pass their physical examinations. Pilots early in their service begin to realize that their careers are in jeopardy. Every minor accident or disease is a potential source of flying disability, every minor physical defect a source of constant worry, which reaches its climax twice yearly at the annual and semiannual physical examinations.

It is true that waivers are normally granted for some of the minor defects; but this is considered only a stay of execution, a reprieve for a limited time only. It is not the wrecking of the career that we are concerned with here but the fear, the uncertainty, the social and economic insecurity which hangs, often for years, over the pilot's head and adds a heavy burden to his cares and depletes his nervous resistance.

(*c*) Ego Deflation. The World War changed the status of airplane pilots from crazy fools to national heroes. The public changed its attitude from one of curiosity and scorn to one of honor and respect. Thus for the first years the military pilot had his ego tremendously stimulated. Gradually, however, aviation has become more commonplace. No longer do people rush out to see an airplane. Aviation has become an industry instead of an exhibition. Flying has become an occupation instead of a stunt. Aviators became human beings instead of gods.

This slow but definite change has deflated the pilot's ego and thereby created a further emotional stress. There is the constant attempt to regain face, to reclaim and hold a fading dream. It was this stimulated ego, which lasted for several years after the war, that accounts for the fact that "aeroneurosis" is of rather recent origin. It was, in a sense, the reward or compensation for the risk involved.

Another factor affecting the ego appears at about the age 30 to 40, or after about ten to fifteen years of flying. As is common in many pursuits, such as athletics, fliers reach their peak of efficiency early in life. Unlike the similar pursuits that are well established and in which a decline is anticipated early, aviation has no such precedent. Pilots anticipate aviation as a lifetime profession and the knowledge that finally younger and less experienced pilots are outperforming, outmaneuvering, outlasting and outdaring them is indeed a bitter blow to the once sustaining ego. Then again all those factors which are likely to result in the grounding of the pilot have their ego deflating influences. The grounding of a pilot carries with it a certain loss of caste or face, a partial loss of compensation, lower standards of living, social insecurity and, in general, a train of events which by their very nature depress the ego. Here again we are concerned only with the emotional stress engendered.

(*d*) Economic and Social Security. Normally flying pay provides a sufficient income for the average individual as long as it continues, but any influence which jeopardizes that pay creates at once in that individual a marked sense of economic and social insecurity. This comes about by reason of the fact that, once established on flying pay, the average pilot makes certain commitments based on his anticipated income. Consequently, when his income is reduced, he necessarily must lower his standard of living, he loses a certain amount of professional and social caste, his ego is deflated, and he is left with no recompense for the added hazards of disability or death which he had successfully endured. The net result of his extra risks is to escape with heavy commitments on a reduced income at the time of life when most men anticipate an increased compensation and expect to be at the peak of their efficiency.

Normally the first change to direct the individual's attention to his uncertain economic position is the development of minor physical defects or deviations which suspend him temporarily from flying. It is then that he realizes the problem before him. No longer is physical perfection a gift of nature but a condition to be maintained with difficulty, if at all.

The second change that comes about is the added responsibilities assumed when a home is established and a family created. Here the relative conservatism of advancing age adds to the problem, for at this stage there is something more vital at stake. Not only must the individual provide for his own welfare but now there are others to be protected and provided for. The individual's instincts of self preservation may be repressed, his security may be ignored, but the responsibility to others is a duty which he faces with no attempt to repress or avoid but with a determination to provide an adequate solution. By their very natures these individuals are prone to be relatively immune from selfish personal natures; at the same time their consideration for others is developed to a marked degree.

(*e*) Psychic Trauma. There are few occupations which so frequently subject those engaged to such marked subjective and objective psychic shock as does aviation. Few pilots pass many years without one or more serious airplane accidents. Whether or not there is physical injury, a crash always produces profound psychic trauma. The impact of a swiftly moving airplane with the ground or another airplane, in addition to the sudden deceleration, floods the nervous system with a deluge of efferent impulses and sensory impacts of terrific volume. The ultimate effect is not susceptible of objective analysis, but there can be no doubt as to the damaging effect to the whole nervous system.

In addition to being subjected to airplane crashes, pilots are frequently a witness to the crashes of others. Crashes undoubtedly produce the most violent known deaths, and rescuers usually find a mangled corpse with brain tissue spattered over the instrument board, naked bones projecting through flesh, and the body a jelly-like mass confined to shape only by the clothing. Frequently gallons of spilled gasoline turn the twisted mass of wreckage into a concentrated hell of searing flame while the victim writhes and curls amid the stench of burning flesh.

To witness one of these scenes is never to forget it. To witness one and fly one must forget it, repress it; and thereby a new conflict arises.

(*f*) The Instinct of Self Preservation. The instinct of self preservation, being the most fundamental and deep seated of all instincts, is capable of arousing the most profound emotional disturbances. These emotional disturbances, other things being equal, are directly proportional to the degree of the hazard and the length of time endured. It does not require an actual hazard to produce these disturbances, but they are as readily produced by instinctive fears for which, in reality, there is no basis.

(1) Fear of loud noises. It has been found that loud noises are one of the two external agents which are capable of producing manifest fear in young infants. That this fear is instinctive and has a powerful effect on our reactions is demonstrated by the universal habit of every one jumping and showing a startled facial expression at any sudden unexpected loud noise despite the fact that no one has ever been injured by a noise.

It is therefore probable that aviators, subjected as they are to the extreme noises of high-powered unmuffled motors, have to repress this normal instinctive fear, which adds its load to the burden of the nervous system.

(2) Fear of falling. Fear of falling is the second of the two external agencies capable of producing manifest fear in young infants. Added to the fact that it is an inherited instinct, it has for a background in most individuals, especially in childhood, a long painful series of experiences to prove its worth. Thus from experience and instinct all normal individuals have a marked fear of high places and of falling. It is this fear which to a great extent determines whether or not flying cadets complete their flying training. Those who are unable to suppress this fear are tense on the controls and never are able to fly well and are rejected. However, the repression of this fear does not in any sense relieve the nervous system of that burden but actually intensifies it as the conflict between desire and conduct rages in the unconscious.

(3) Accident hazards. Aviation is recognized as a hazardous occupation. This hazard fluctuates from year to year but in general maintains a rather constant level. The improvement in materials and design are about equally offset by increased speed and performance. In the group under consideration there were for the three-year period ten deaths, one from natural causes and nine from airplane accidents. In other words, each day these pilots were nine times more apt to die from an aircraft accident than from natural causes. Furthermore, since the average flying time for the group was about thirty hours a month, or one hour a day, their hazard per hour while flying was nine times twenty-four hours (per day) or 216 times the hazard per hour while not flying.

In addition to the deaths, there were nineteen emergency parachute jumps, seven collisions in midair, and seventy-seven aircraft accidents of various degrees producing injuries to thirty-nine individuals.

Since the instinct of self preservation is the dominating influence of our existence, it is not difficult to realize the stress to which these pilots are constantly subjected. To carry on successfully they must repress this instinct into the unconscious, where it remains hidden from view but nevertheless constantly exerts its emotional influence.

(*g*) Fatigue of the Brain Centers. The military pilot lives in an environment containing all the classic elements for incurring mental fatigue. Reviewing the psychologic causes of fatigue, as quoted by others, the one common, all-important feature seems to be mental conflicts.

The concentration of attention required by his occupation is probably unsurpassed by any other. In addition to this, his mind is beset to an abnormal degree, consciously or unconsciously, with the following vital problems:

Thwarted ambitions.
Biologic pattern distortion.
Disqualifying physiologic changes.
Disqualifying physical changes.
Disqualifying nervous and mental changes.
Ego deflation.
Economic insecurity.
Social insecurity.
Psychic trauma.
Self preservation.

Not only do these various problems exist but to the average pilot they appear inevitable. The constant endeavor to make the proper adjustments is indeed a task to test the fiber of the strongest intellect.

SYMPTOMATOLOGY

All pilots are under constant observation by trained flight surgeons and are given a thorough physical examination at intervals of from one to six months. The first definite evidence of any defect whether physical or mental requires the grounding of that individual and the prompt administration of remedial measures. It is thus obvious that any disease process which is amenable to treatment is not allowed to progress through its natural course to a final termination. For this reason it is to be understood that the data presented here do not pretend to describe the disease process throughout its natural course but probably only its initial stages.

This close observation of pilots no doubt explains why an interval of years has passed before the accumulated data crystallized into the conception of new clinical entity. In my experience it was in pilots who had been on prolonged detached service away from proper supervision that the most advanced cases were observed and first gave a clue to the true nature of the disease.

CLINICAL HISTORY; MODE OF ONSET

Just when to fix the exact time of onset of this disease in most cases is extremely difficult, but it was noted that it invariably followed a period of unusually heavy flying.

The patient himself, at first being unaware of any nervous disorder, does not connect it with any definite date or event. It is probable that the change from normal is so gradual that the actual onset predates by several weeks or months the attention of the patient or the surgeon. A searching inquiry usually reveals the rather constant history of what is probably a recurring gastric neurosis, sometimes dating back for several years before the appearance of other symptoms.

SUBJECTIVE SYMPTOMS AND PHYSICAL CHANGES

As may be anticipated from the functional nature of the disease, symptoms may appear in any system of the body. In contradistinction to most functional disorders, however, this disease process exhibits rather remarkably uniform symptom patterns so far as they have been observed. It was noted that there were certain features common to all. The disorder was essentially subjective with no objective evidence of disease (except as noted later). There was evidence of irritable fatigue of the higher brain centers accompanied by increased motor activity. There was finally a disagreement between the symptoms complained of and the conduct of the patient, which further emphasizes the emotional nature of the disorder.

SYMPTOMS REFERABLE TO THE CEREBROSPINAL NERVOUS SYSTEM

1. *Subjective Symptoms.*—(*a*) Mental State: The patient is restless and irritable, and his nerves are on edge. There is a tendency to resist the idea of illness but with usually a complaint of overstress and overwork. Everything and everybody acts as a source of irritation and in his home the family suffers from his pent-up feelings. The patient is apprehensive for the future and miserable in his environment, but he refers all this to conditions outside his body.

One of the most constant complaints is of insomnia or light and fitful sleep disturbed by unpleasant dreams or actual nightmares. The latter are occupational in character and usually concern flying with disastrous results. An unusual feature frequently found, which is probably a result of the dreams, is the extreme depression on awaking in the morning, with an accompanying profound dread and apprehension. For this reason patients appear most unwell in the early part of the day and improve during the afternoon until evening, when they regain a less depressed but more irritable mood.

There is some diminution of attention and difficulty of concentration. In most cases there is developed a mild paranoid personality, the patient feeling that he is being treated unjustly and that there are deliberate attempts to discriminate against him. This is especially true with regard to duties assigned and as a result there is a distaste for his occupation.

(*b*) Projection Pathways: Since headaches are frequent among pilots from ill fitting goggles and helmets, carbon monoxide poisoning, anoxemia and blocked sinuses, it is rather difficult to evaluate this symptom. In my opinion it occurs more often than normally among these patients, especially in the morning, and is due principally to lack of adequate rest. There were no complaints of tenderness of the scalp or along the spine. Skin sensibility was normal with no complaints of numbness, tingling, heat, cold, sweating or anesthesia.

(*c*) Eye Symptoms: Continued use of the eyes for reading often brought on rapid fatigue with burning and smarting of the conjunctiva and blurring of vision in bright lights. Often there was itching of the lids and a feeling of dryness of the eyeballs.

(*d*) Ear Symptoms: All pilots after a few years' service acquire a variable diminution of hearing. This serves to diminish any hyperesthesia to sound and protects to some extent against auditory irritations. There seems to be a tendency for balance tests to show an increased unsteadiness, and whirling tests increase the nystagmus time and past-pointing.

(*e*) Disturbances in the Organs of Smell and Taste: There were no symptoms elicited for these systems, although some patients reported a distaste for food.

(*f*) Muscular System: Despite the frequent references in the literature to this syndrome as a chronic fatigue, as far as the voluntary musculature is concerned the opposite condition prevailed. Regardless of the loss of rest or mental weariness, there was always a ceaseless activity. A great amount of athletics was indulged in and mostly those of a strenuous nature. Movements were almost continuous and of a restless type and any activity was welcome. No complaints of unnatural muscle fatigue, cramps, tenderness, spasms or twitchings were noted. The one possible exception to this was the manifest deviation of the eyes as measured on the phorometer, and that this was of muscle and not nervous origin has not been proved.

2. *Physical Changes.*—As may be expected, there were few objective symptoms demonstrated. At this point, however, it is wished to call attention again to the possibility that there might very well be considerable organic destruction. I have clearly demonstrated by animal experimentation that conditions to which pilots may be exposed can produce severe central nerve lesions. However, until this has been definitely supported by clinical pathologic observations it will be mentioned only as a field for further study.

(*a*) Mental State: There was a peculiar analogy between the objective mental state of aeroneurosis and that seen in pneumonia (anoxemia). The mind was apprehensive, alert, anxious and restless. The subjective mental state was more apparent than real, for if called on the patient could by effort carry on normally.

(*b*) Projection Pathways: The eyes were negative except for the apparent weakness of the extrinsic muscles. Examination of the eye and appendages during complaints of fatigue and irritations usually failed to show any abnormality. The field of vision and color remained normal, as did the ocular fundi. There was often nystagmus in the lateral positions, however, and a coarse tremor of the closed lids.

The Ear. Thickening of the membrana tympani could be accounted for as occupational. There were no other abnormalities.

Smell and Taste. The nose was apt to show evidence of chronic irritation, but this was occupational and of no significance.

Sensory Skin Disturbances. No cases of sensory skin disturbances were observed.

Muscular System. Muscle sense and sense of position remained normal, with no ataxia, incoordination, hypertrophy or atrophy observed.

3. *Special Tests.*—The tendon reflexes had a tendency to be somewhat exaggerated, but not routinely so. Corneal, pupillary and skin reflexes remained normal.

4. *Symptoms Referable to the Autonomic Nervous System.*—It has been established by researches of Cannon and others that the emotions, acting through the sympathetic nervous system, have a profound effect on those organs supplied by that system. Furthermore, it has been found that these organs are affected in the order of their primitive origin, the gastro-intestinal being followed by the cardiovascular, respiratory and genito-urinary in order.

The reactions that take place are designed to place the organism in the best condition to defend and maintain life and are thus dynamic reactions, with every system mobilized and ready for instant combat.

This continual excess flow of energy constitutes a drain on the organism which it is impossible to replace and thereby a vicious circle is established, ultimately producing a breakdown of the normal functional processes without causing organic destruction.

5. *Subjective Symptoms and Physical Changes.*—(*a*) Gastro-Intestinal System: The universal presence of gastric symptoms in "aeroneurosis" was a testimony to the intense emotional factors involved. While this symptom was the one most frequently complained of, it seldom was the cause of any great apprehension to the patient. Whether this was a result of the general knowledge that pilots are subject to "aviator's stomach" or to the fact that pilots were reluctant to divulge any defect that might jeopardize their flying is not known. By careful inquiry it was established that this was always the first subjective symptom recognized as such. Gastric distress appeared from one to four years prior to the recognition of the fully established disease process and was a recurring episode brought forth by periods of hard flying, disappearing in between times only to reappear again. The complaints of gastric disturbances were remarkably constant and consisted essentially of a gnawing pain in the epigastrium not unlike the hunger pains of ulcer. There was no loss of appetite, nor were there complaints of nausea, vomiting, eructation of gas or distention.

Later in the course of the disease there developed a hypermotility of the intestine, with gurgling of the contents and sometimes a mild watery diarrhea. As might be expected, no organic changes in the gastro-intestinal tract could be demonstrated. The hypermotility of the stomach and intestine could readily be observed by means of the roentgenograph and the fluoroscope. Inspection of the stools showed a loose consistency in some cases, with gross evidence of undigested particles of food material.

(*b*) Cardiovascular System: There were no specific complaints regarding this system except occasionally a consciousness of the heart beat or throbbing of the carotids at night, although these were recognized as such and caused no undue apprehension.

The objective manifestations in the mild cases were approximately normal but in the few advanced cases observed it was noted that there was a comparative increase in the heart rate, a lowered diastolic and increased systolic blood pressure, lowered exercise tolerance and a tendency to neurocirculatory asthenia.

(*c*) Respiratory System: In this system even the advanced cases showed no evidence of abnormality. Breathing rates and depths were normal and cyanosis was not observed.

(*d*) The Genito-Urinary System: There were no complaints of this system and no variations from the normal were found. In keeping with the general increased activity it was found that there was a corresponding increase in sexual functions.

(*e*) Laboratory Examinations: Blood counts and hemoglobin estimations were normal and presented no characteristic picture. Wassermann and Kahn reactions were negative. The urine was usually increased in amount and of low specific gravity. Casts, albumin and sugar were not normally found, and organic and inorganic compounds were present only in the usual amounts. The stools were usually normal but occasionally contained particles of undigested food, particularly the proteins.

DIAGNOSIS

The diagnosis of "aeroneurosis" in even a moderately advanced case is not difficult. That this is true is evidenced by the fact that it has been recognized as an entity by most authors, even though there has never been a previous clinical description of the disease. A complete review of the current literature fails to show a single instance of the known functional nervous disorders being described in airplane pilots, while at the same time there has been a constant reference to this syndrome under an arbitrary designation which most nearly described it to the author.

The occurrence of a functional gastric disorder in pilots of several years' experience combined with a general irritability and increased motor activity with subjective complaints of insomnia and mental fatigue is usually sufficient for a tentative diagnosis. A positive diagnosis can be made only after ruling out the two following conditions:

1. *Distinction from Other Organic Disease.*—In my cases the only organic diseases that might have caused any confusion were gastric and duodenal ulcer or tumor. These conditions should always be ruled out by gastric analysis and roentgen examination.

Exhausting and wasting diseases as well as intoxications and other debilitating conditions should cause no difficulty because of the increased activity in the cases of "aeroneuroses." Organic disease of the nervous system should be detected by proper physical examination and serologic tests.

2. *Distinction from Other Functional Nervous Diseases.*—The essential differentiating factors in "aeroneurosis" from other functional nervous disorders are as follows:

In hysteria the personality is distinguished by an inborn instability with short explosive outbursts and a tendency to self-seeking satisfaction based on a complacent observation of the disability.

Neurasthenia is characterized by a motor fatigue, which is readily distinguished from the activity of "aeroneuroses."

Psychasthenia, of course, concentrates its symptoms on the psychic side and develops in an altogether different personality.

TABLE 3.—*Other Nervous and Mental Diseases*

Disease	Number of Cases	Years of Service	Age at Onset
Neurasthenia	1	5	26
Anxiety neurosis	2	{6 months {2 years	{23 {27
Hysteria	1	3	24
Hypochrondria	1	3	26
Dementia praecox	1	0	25
Malingerer	1	4	26

The first stages of dementia praecox and cyclothymia may present some difficulties, but a period of observation should make the differential diagnosis simple.

COMPLICATIONS AND SEQUELAE

As explained under Symptomatology, the cases under consideration were treated early in the disease and not allowed to progress. No complications were observed and it is not believed that the condition is serious with regard to prospects of life. However, the effect is such that flying becomes dangerous and all such patients should be grounded.

Association with Other Diseases.—While the group of cases under consideration here were free from other diseases and maintained in otherwise excellent health, there is no reason to believe that they could not be associated with other disease processes. It is especially likely that focal infections or other debilitating disease could act as an exciting factor.

It is interesting to note that those individuals who suffered from other nervous and mental disorders were entirely free from symptoms of "aeroneurosis" and all developed earlier in time both as to age and service. The other nervous and mental cases and the number of each in the observed group of 163 are given in table 3.

CLINICAL VARIETIES

No clinical varieties of the disease could be distinguished. In view of the fact that this is a functional nervous disorder, the uniformity of the symptoms and other manifestations is rather remarkable. It might well be that cases allowed to progress would finally show considerable variation, but until that has been observed this remains pure speculation.

TREATMENT

1. *Prophylaxis.*—"Aeroneurosis" could probably be eliminated by a careful selection of candidates for flying training. The personalities and characteristics of those susceptible having been determined, it is believed that they are susceptible of identification and elimination at the time of application for examination.

This simple expedient, however, has the distinct disadvantage of depriving aviation of those who are acknowledged to be the highest type pilots. The problem resolves itself into a question of whether it is more desirable to select the better pilots who break down after ten or fifteen years' service or poorer ones who are more durable.

Assuming that it is highly desirable to retain the better type of pilot, it becomes necessary to determine and remove the causative factors in aeroneurosis. As already noted, the principal causative factor was profound emotional stress produced principally by accident hazards and social and economic security. The former is an inherent characteristic of aviation and in the present state of our knowledge is not amenable to regulation. The latter, while not under the control of the medical profession, is a direct responsibility of the medical profession and as such should be subject to proper regulation for the protection of the individual and of the flying public.

Hershey,[3] in discussing the treatment of functional neuroses, says: "The first step in the treatment of these cases consists of discovering the cause of the conflict. If the conflict is based on a real situation which does in fact jeopardize the social or economic security or arouses the instinct of self preservation, then, while it may be possible to temporarily get the patient symptom free, it is never possible to get a permanent cure until the cause of the conflict has been removed or has been adequately compensated for." This finding, based on an extensive clinical experience, is further borne out by Wright,[4] who has found that "among a large series of commercial pilots nervous disorders are infrequent among pilots who receive an adequate income and almost all cases that have developed were observed in those individuals who received inadequate compensation for the hazards endured or whose positions, and consequently their economic state, were insecure."

From the foregoing and my experiences with "stunt" pilots, it is well established that the emotional stress of flying hazards can be offset by suitable compensation, either ego stimulating or monetary. Since modern commercial aviation lacks any great amount of ego stimulation, it remains to establish some standard to determine at approximately what point compensation overcomes the effect of the accident hazard.

For the group under consideration, it has already been noted that, as compared to ground personnel, where the hazard is 9 to 1 the compensation is 1.5 to 1. In Wright's [4] series of cases it was found that, when the compensation was between 2 and 3 to 1, no difficulty was experienced. Therefore it may be assumed that flying pay equal to three times the normal for equivalent ground personnel is adequate where the fatality rate is nine times as great. Expressed mathematically: $\text{Flying pay} = \frac{\text{Flying hazard}}{3} \times \text{ground pay}$.

The economic and social insecurity among aviators seems to be due principally to the fact that usually during middle life, when their social and family responsi-

3. Hershey, Lynn: Personal communication to the author.
4. Wright, H. B.: Personal communication to the author.

bilities are the heaviest, they are removed from flying and forced to accept a minor ground position on greatly reduced pay. Whether or not this actually happens is of no great importance, since it is the years of uncertainty preceding this period that produces the emotional stress and hence the nervous disorder. To create for these individuals a proper economic security, nothing would appear more reasonable and effective than a modification of the present system employed in any other occupational disability. The pilot who is grounded from flying but otherwise fit should be given a flying disability retirement and allowed to assume an executive or administrative ground position. It is believed that this plan, in conjunction with adequate pay for the risks involved, would allow the majority of pilots to pass through their flying career free from aeroneuroses.

In actual practice, the prophylactic measures adopted were those calculated to provide for good health, pleasant environments and active recreations. Special attention was devoted to the elimination of all possible sources of mental irritation and worry.

2. *Active Treatment.*—In the active treatment of the cases considered here, all the usual measures were given a fair trial. Diets, rest, hydrotherapy and various psychoanalytic maneuvers were all of no apparent benefit. Complete removal from the environment in some cases produced marked temporary improvement provided it involved no economic loss to the individual, in which event no improvement or an aggravation occurred. In those cases in which an improvement did occur it proved to be only temporary, for after three months' to a year's duty the attack invariably recurred, usually more severe than the one preceding. It is from this experience that prophylactic rather than curative measures are considered to be of paramount importance.

3. *Final Disposition.*—Based on the inadequate and unsatisfactory methods of treatment available to the group discussed here, four of the eighteen original patients have been removed permanently from flying, one by death in an aircraft accident, one by retirement for physical disability and two because of aeroneurosis. Of the fourteen still on flying duty, three are considered ready for retirement as totally permanently disabled, four are considered unfit for flying duty but fit for ground duty, and the remaining seven are considered able to remain on flying duty under close supervision.

The controlling factor in the final disposition of these cases should be the welfare of the individual and the protection of the flying public. Those who have had several recurrences, each more severe than the preceding one, and who are reduced to a state of unfitness for administrative duties should be permanently retired. Those who have had several recurrences and are kept symptom free only by grounding should be permanently grounded. Those who have no more than the initial symptoms, have had no more than one fully developed attack, or who have recovered from an attack and remained symptom free during a six months period of flying should remain on flying only under the close continuous observation of a surgeon.

PATHOLOGY

Whether or not actual organic nerve lesions can be demonstrated in cases of "aeroneurosis" must for the present remain pure speculation. That this important aspect has not been fully investigated is due to the difficulty in securing suitable tissue sections. In the crash cases examined, the trauma had so disorganized the brain tissues that the detection of other old lesions was found impracticable. As mentioned before, however, experimental animals exposed to conditions similar to those endured by pilots have shown in many instances congestion, edema, hemorrhage, and even destruction of brain tissue.[5] These lesions were those normally found in cases of accidental death in man from the same physical agents and varied only in degree. The particular pathologic condition in each instance was dependent on whether anoxemia, carbon monoxide poisoning, trauma or centrifugal force was used and the lesions produced are too well known to require repeating here.

In any event, since the presence of actual pathologic changes could only be one of the contributing factors in this disease process the question will be left for future investigations to answer and I shall proceed to a discussion of the pathogenesis.

In considering the possible theories to explain the pathogenesis of "aeroneurosis," one is at once struck by the number of those which can unquestionably be discarded. Focal infections, wasting disease, debilitating states, exhausting fevers, toxins, intoxications, inferior constitutional states, hereditary taints, defective mentality and emotional instability can be eliminated immediately. There remains then only a psychogenic theory to explain the relationship between the etiology and the symptomatology. Therefore I will briefly reconstruct again the situation as it normally develops and trace by logical steps the mechanism of the defense reactions and on through the development of the disease process.

When an individual enters on his career as a pilot he is essentially physically perfect, with a high degree of intelligence, filled with ambition, possessed of great natural courage, fired with enthusiasm and devoted to duty. The irresponsibility of youth, the pride of accomplishment, the zest of living and the ignorance of inexperience carry him blithely through the first few years. Gradually, however, as time passes physical perfection is replaced by physical defect and physiologic change, ambition by apprehension, reckless courage by cool judgment, irresponsibility by responsibility, youth by age, inexperience by experience, and pride by ego deflation. In other words, there has been created a situation in which instinctive desires conflict absolutely with social regulation.

Primarily there is the powerful instinct of self preservation buried in the unconscious which strives to project itself into the conscious. This conflict rages continuously and, unbeknown to the individual, produces deep emotional reactions. Even though he is protected from mental pain by this repressed emotion, which allows him to carry on free from conscious fear, there is in this situation much material for intellectual insult. A simple comparison of the ratio between the accident hazard and the monetary compensation with regard to either commercial fliers or officers of the services offers nothing to the individual but the obvious conclusion that his worth is lightly valued. The accompanying ego deflation, resentment and sense of injustice add their burden of emotional stress. The higher the intelligence, the more this holds true. The high type appreciates the value of safety; the moron is unconcerned.

The many avenues of escape from this situation are naturally obvious to the individual but to this person-

5. Armstrong, H. G.: Unpublished reports.

ality type the price is too high. To quit is unthinkable, to avoid the issue spells weakness, to accept emotional subjective equivalents of disease is to admit instability, and to shrink from responsibility is to invite social and economic insecurity.

The latter, the almost inevitable social and economic insecurity, also is a situation capable of arousing great emotional disturbances. To a great extent economic security or advantage relieves other stresses and acts as a prophylaxis against breakdowns. Even fear may be overcome by adequate compensation, either monetary or ego stimulating, acting to repair the insult to the nervous system. The lack of it only adds to the insult and further depletes the nervous mechanism. This situation offers no certain means of escape and the anticipation may for years produce a deep anxiety and apprehension not only for the individual's own welfare but on account of all those dependent on him.

The third situation calculated to produce a conflict between instinctive desires and social regulation consists of all those factors which concern the individual temperament. These are principally the thwarted ambitions, ego deflation, loss of caste and all those items of importance to the proper maintenance of self esteem, high morale, mental peace and nervous stability.

Thus these individuals are beset with a myriad of profound emotional stresses, some repressed, some clear to the intellect, all capable of producing marked reactions. It remains then to show by what mechanism these forces are responsible for the symptoms produced.

As noted before, it was first shown by Cannon and others that the emotions are capable of producing marked physiologic reactions. This process is an inherited characteristic which comes into action whenever the maintenance or defense of life is endangered. It occurs as a function of the sympathetic nervous system, which, when affected by the various unpleasant emotions, mobilizes the bodily resources as a means of preparing for combat or flight. Each system of the body maintains itself at its highest pitch of efficiency to contribute its share in the defense of the organism. The heart speeds up and the blood pressure rises to nourish the tissues better. The respiratory apparatus increases the lung ventilation to supply a rich oxygen mixture to the blood. The gastro-intestinal tract becomes hyperactive to prepare food for the body utilization. The brain and nervous system stand alert and ready, actively guiding the maneuvers of the battle and acting for long periods without adequate rest, facing the situation squarely and striving for an adequate solution to the problem. As long as the stress continues, the outpouring of the excessive energy goes on and the normal processes of conservation and repair are abandoned. Eventually the physiologic reactions are brought to the attention of the individual and can be observed and measured by objective methods. The nervous reactions are those of depletion of the higher centers. Both reactions are free from the deviations of somatic or nervous defect, for in these cases there are no doubts and hesitation as in psychasthenia, no quitting under the guise of organic disability as in neurasthenia, no infantile reactions of hysteria, or none of the obsessions or mental manias of the anxiety states. The victim stands firm and immovable but is worn down by irresistible forces. In brief, the pathogenesis of "aeroneurosis" consists of profound emotional disturbances, long continued, producing manifest hyperactive physiologic responses and higher nerve center depletion, the latter unaccompanied by abnormal deviations.

CONCLUSIONS

From a study of the functional nervous disorders occurring in 163 unselected airplane pilots over a period of three years, it is concluded that:

1. Of the group studied 11.04 per cent suffered from a special form of the psychoneuroses, which affected 3 per cent of those in the age group 22-29, 50 per cent of those in the age group 30-39, and 57 per cent of those in the age group 40-49.
2. The disease is a chronic functional nervous disorder, classifiable as a new type of the psychoneuroses. A distinctive nomenclature being required, the term "aeroneurosis" is suggested.
3. The principal etiologic factors are accident hazards, economic and social insecurity, and possibly nerve tissue destruction.
4. The cardinal symptoms are general irritability, gastric neuroses, insomnia, motor hyperactivity, and depletion of the higher mental centers.
5. Adequate treatment requires, in addition to the usual therapeutic measures, administrative changes to provide adequate compensations and economic and social security.
6. The pathogenesis consists of profound emotional stresses, long continued, producing a physiologic hyperactivity and a depletion of the higher nervous centers.

Wright Field.

SCARLET FEVER IMMUNIZATION DURING A SCHOOL EPIDEMIC

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During the winter of 1935 an epidemic of scarlet fever occurred among the students of the School of Agriculture, in which we reported an epidemic of scarlet fever thirteen years ago.[1] The enrolment of the school at the time of this recent epidemic was 317 boys and 119 girls, practically all of whom lived in dormitories on the campus. The first case of scarlet fever appeared on January 15. The usual control measures were immediately applied, but the disease continued to spread. In view of this it was decided to resort to immunization in the hope of controlling the epidemic. Active immunization was employed on a large scale and passive immunization in a few individuals. The results of the passive immunization were discouraging but the occurrence of new cases of scarlet fever declined abruptly after the third dose of scarlet fever toxin had been administered to those who were susceptible.

Conditions in this school are unusually favorable for the spread of communicable diseases. The students, mostly of high school age, come from rural communities, live under rather congested conditions, congregate in one another's rooms, and have not been accustomed to obtain medical care for minor illnesses. The result is that certain students with mild infections remain up and about, in intimate association with a highly susceptible group of their fellows.

This outbreak of scarlet fever was preceded by an epidemic of German measles and numerous cases of

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1. Diehl, H. S., and Shepard, W. P.: A Scarlet Fever Epidemic in an Agricultural School, J. A. M. A. **79**: 2079-2085 (Dec. 16) 1922.

sore throat, clinically of the streptococcic type. This raised some difficult problems of diagnosis, particularly as the cases of sore throat, possibly of the scarlet fever type, continued with greater or less frequency throughout the epidemic.

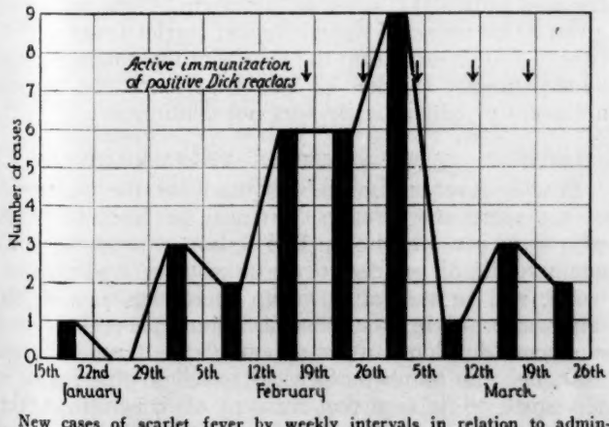
The first case of scarlet fever was diagnosed on January 15. Despite the daily examination of close contacts and the isolation and observation of suspected individuals, a second case, with no known exposure to the first one, appeared on January 31. Both patients were boys and the infections were severe. From then on new cases kept appearing at intervals of one to seven days till a total of thirty-three cases had occurred, as shown in the chart.

THROAT CULTURES

Early in the epidemic, routine inspections of the throats of contacts were supplemented by cultures from the throats of suspected cases and contacts. Thirty-seven such cultures were examined for hemolytic streptococci in the laboratory of the University Hospital. Thirty of these were reported to contain many hemolytic streptococci; five showed a few colonies, and only three contained no hemolytic streptococci (table 1). Although all the individuals from whom these cultures were taken had positive Dick tests and were closely observed, none developed scarlet fever during the period of this epidemic. One individual in the group developed frank rheumatic fever and two developed sore throat with otitis media.

Cultures were taken also from three patients with scarlet fever and from twenty-one students selected at random from the group with positive Dick tests but without symptoms. These cultures were examined by the laboratories of the state board of health, according to the technic described by Tunnicliff.[2] The results are reported on the basis of the phagocytic index (table 2).

In a series of scarlet fever carriers reported by Tunnicliff, the phagocytic index varied from 4 to 18. Two of the frank cases of scarlet fever in our series (1 and 3) had indexes above 4 but the third case (2) had a phagocytic index of only 0.7. Seven of the individuals included in the random sample of those with positive Dick tests had indexes above 4. Two of these (6 and 16) developed scarlet fever. One (19) developed rheumatic fever. The others showed no symptoms or signs of infection.



New cases of scarlet fever by weekly intervals in relation to administration of toxin.

2. Tunnicliff, Ruth, and Crooks, C. T.: The Healthy Carrier in Scarlet Fever, J. A. M. A. **92**: 1498 (May 4) 1929.

ACTIVE IMMUNIZATION

In view of the evident ineffectiveness of the control measures employed it was decided on February 12 to administer scarlet fever toxin to those susceptible who would not refuse it. Preparation for this was made by means of talks and bulletins to the student body.

TABLE 1.—*Cultures of Contacts and Suspects*

Laboratory Report	Number of Cases	Per Cent
Many colonies of hemolytic streptococci....	29	78
Few colonies of hemolytic streptococci.....	5	14
No colonies of hemolytic streptococci.....	3	8
Totals.....	37	100

TABLE 2.—*Phagocytic Index of Streptococci from Throat Cultures*

Case Number		Phagocytic Index
From Patients with Scarlet Fever	1	4.3
	2	0.7
	3	8.0
Random Samples from Students with Positive Dick Tests	4	5.0
	5	1.5
	6	4.1
	7	2.0
	8	6.0
	9	3.1
	10	1.0
	11	1.3
	12	1.2
	13	2.5
	14	6.0
	15	5.0
	16	5.0
	17	1.0
	18	1.6
	19	7.0
	20	2.1
	21	2.5
	22	1.2
	23	1.4
	24	1.6

A preliminary Dick test of the group showed that 59 per cent of the boys and 62 per cent of the girls were susceptible. Some of these had been previously tested and a few immunized. At the time of the reading of these Dick tests, temperatures were "taken" and inspections of the pharynx and skin were made. Those with any suspicious manifestations were isolated.

Two hundred and forty-one students were given the first injection of scarlet fever toxin, 500 skin test doses, February 17. Subsequent injections were given at weekly intervals, but owing to reactions and other disturbing factors the number injected decreased somewhat with each subsequent injection. If a severe reaction followed one dose, the succeeding dose was divided. This accounts for the fact that some of the individuals who were given five doses received less than the usual 135,000 skin test doses of toxin.

SUBSEQUENT COURSE OF THE EPIDEMIC

The occurrence of new cases by weekly intervals and in relation to the administration of toxin is shown in the chart. From this it is apparent that the number of new cases declined abruptly after the third dose of toxin. In fact, only one new case developed between the administration of the third and fourth doses and two between the fourth and fifth doses.

It is possible, of course, that this decline may have been merely coincidental with and entirely independent of the administration of toxin. On the other hand, reports indicate that considerable immunity develops after three doses of scarlet fever toxin. Furthermore, the course of the epidemic was distinctly upward at the time of the administration of the toxin and except

for the immunization there should have been a sufficient number of susceptible students left in the group to permit the epidemic to continue for a considerable period. In an epidemic of scarlet fever in Berea College in Kentucky, in which active immunization was employed, fifty-nine new cases developed between the first and second dose of toxin, four between the second and the third dose, and none after the third dose had been administered.[3]

REACTIONS TO THE SCARLET FEVER TOXIN

A considerable proportion of the individuals who received the scarlet fever toxin experienced reactions, more or less severe, following the injection. Most of these reactions were not incapacitating but almost 5 per cent of the group had reactions after each dose severe enough to cause them to be admitted to the Health Service infirmary. The rashes that followed some of the toxin injections introduced a problem of diagnosis, which in certain cases was distinctly troublesome.

The frequency and severity of these reactions were in marked contrast to our experience with active immunization in the students of the same school in the fall of 1935. At this time sixty-two new students who reacted positively to the Dick test were given five doses of scarlet fever toxin and only two in the whole series had reactions severe enough to cause admission to the infirmary, and even mild reactions were rare.

IMMUNITY PRODUCED

Although it is always desirable to administer Dick tests after the scarlet fever immunization, it was impossible to do so in this group because of the end of the school term. However, eighty-three of the students who had received scarlet fever toxin during the epidemic were tested when they returned to school in October, approximately six months after the completion of immunization. Of these, 67 per cent of those who received less than 11,000 units of toxin and 93 per cent who received more than 11,000 units of toxin had negative Dick tests (table 3).[3a]

TABLE 3.—*Dick Tests Six Months After Scarlet Fever Toxin*

	Skin Test Doses of Toxin Administered							
	500–10,500		11,500–135,000		More Than 135,000		Total	
Dick Test	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
+	9	33.3	4	7.4	..	.....	13	15.7
—	18	66.7	50	92.6	2	100.0	70	84.3
	27	100.0	54	100.0	2	100.0	83	100.0

The results shown in this table indicate a highly satisfactory degree of immunization, but it is also interesting to note that during the epidemic no cases of scarlet fever occurred among forty-three employees who had positive Dick tests and were closely associated with the school students but received no immunization, and that when twenty-three of these were retested in October, nine, or 38 per cent, had negative Dick tests.

SCARLET FEVER ANTITOXIN PROPHYLACTICALLY

At the beginning of the immunization procedures, scarlet fever antitoxin was administered prophylactically to twenty-five individuals who had positive Dick tests and had been in close contact with patients with scarlet fever. No antitoxin was administered to any who gave a history of allergy or to any who reacted to an intradermal test dose of the serum. Thirteen of the group were given 2,000 units of antitoxin in a single dose; nine received two doses of 1,000 units each on subsequent days, and three received one dose of 1,000 units.

TABLE 4.—*Summary of Cases*

	Antitoxin Therapy		
	Yes	No	Totals
All cases*	13	20	33
Previous history of scarlet fever	1	2	3
Received prophylactic antitoxin	2	3	5
Received no prior toxin	11	9	20
Received 500 S. T. D. toxin	1	6	7
Received 2,500 S. T. D. toxin	1	4	5
Received 10,500 S. T. D. toxin	0	2	2
Serum sickness	1	0	1
Serious complications	2	7	9
Deaths†	0	1	1
Dick test after six months:			
Negative	3	6	9
Positive	0	1	1

* Schultz-Charlton test positive.
† Autopsy report, streptococcic empyema.

In spite of the precautions taken to avoid allergic reactions, nineteen, or 76 per cent of the group, experienced either immediate or delayed reactions to the serum, and seventeen, or 68 per cent, had moderately severe or very severe reactions. Several of these were distinctly alarming. This high proportion of severe serum reactions was surprising in view of the recommendations for its use in susceptible persons who have been exposed to scarlet fever [4] and the adoption of its use as a routine procedure for all Dick positive children admitted to the pediatric service of the Toronto General Hospital.[5]

Five of the group who were given antitoxin prophylactically developed scarlet fever, but three of these had received only 1,000 units of antitoxin. One who was given 2,000 units developed clinical scarlet fever within twenty-four hours from the time that the antitoxin was administered. In view of this experience, the use of antitoxin prophylactically was not continued.

SCARLET FEVER ANTITOXIN THERAPEUTICALLY

Scarlet fever antitoxin was used for the treatment of the more severe cases. Fifteen per cent of those who were given antitoxin had serious complications as compared to 35 per cent of those who received no antitoxin, and in the latter group there was one death. This occurred in a student in whom pneumonia and empyema developed after several days of mild illness. Although the number of cases treated in this series is too small to justify the drawing of conclusions, the results have caused us to adopt the policy recommended by others [6] of giving antitoxin to all patients with scarlet fever as soon as a diagnosis is made. Only one patient who received scarlet fever antitoxin for treatment had a serum reaction.

3. Jones, J. L., and Armstrong, J. W.: A Practical Demonstration of the Control of Scarlet Fever, Kentucky M. J. **27**: 490 (Nov.) 1929.

3a. During the current school year, with scarlet fever again prevalent in the community, five cases occurred among the students of this school. All of these were new students this year. Two were recorded as having had negative reactions to the Dick test on admission, one had just completed the series of five injections of scarlet fever toxin but had not had a subsequent Dick test, and two had had positive Dick tests in October but refused immunization.

4. Dick, Gladys H.: The Control of Scarlet Fever Among Adults, Journal-Lancet **54**: 289 (May 15) 1934.

5. Hannah, Beverley: Prevention of Scarlet Fever in a Children's Hospital, Canada Pub. Health J. **25**: 587 (Dec.) 1934.

6. Hunt, L. W.: Treatment of Scarlet Fever with Antitoxin, J. A. M. A. **101**: 1447 (Nov. 4) 1933. Lucchesi, P. F., and Bowman, J. E.: Antitoxin versus No Antitoxin in Scarlet Fever, J. A. M. A. **103**: 1051 (Oct. 6) 1934.

SUMMARY

1. Active and passive immunization procedures were utilized in an attempt to control an epidemic of scarlet fever among 436 students of an agricultural school.

2. The number of new cases of scarlet fever declined abruptly after the administration of the third dose of scarlet fever toxin.

3. A large proportion of the individuals had mild reactions to the toxin and approximately 5 per cent of the group were admitted to the infirmary after each injection. These reactions were of short duration and not serious, but when accompanied by a rash they introduced difficulties of diagnosis.

4. Ninety-three per cent of a group of susceptible students who had received more than 11,000 skin test doses of scarlet fever toxin showed negative Dick tests six months later. Thirty-eight per cent of twenty-three other individuals who had had positive Dick tests at the time of the epidemic but received no toxin gave negative tests six months later.

5. Scarlet fever antitoxin was administered prophylactically to twenty-five susceptible individuals who had been in close contact with patients with scarlet fever. Seventy-six per cent of these had serum reactions and 68 per cent moderately severe or very severe reactions. Five of the group who received scarlet fever antitoxin prophylactically developed scarlet fever.

6. The results obtained with scarlet fever antitoxin for treatment were satisfactory in this small series of patients.

PARATHYROIDS: A NEW ANATOMIC CONCEPT

CLINTON S. HERRMAN, M.D.

PHILADELPHIA

The human body has been so carefully dissected and minutely studied that it is indeed an anatomic rarity for any one to claim a new observation. A perusal of the literature, however, failed to reveal the following, which I am therefore reporting as original observations: 1. An explanation of the variation in the number of parathyroid glands found in any given specimen. 2. A description of the parathyroid nerves. 3. A location that may be considered normal for the inferior parathyroid gland.

The parathyroid bodies were first described by Sandström [1] in 1880. MacCallum,[2] Halstead [3] and others have added greatly to the store of knowledge concerning them. Their importance has been stressed in relation to thyroid surgery for years, and total ablation of the thyroid gland has made the profession more parathyroid conscious. Lately, because of the recognition of parathyroid anomalies, the glands themselves have taken on renewed importance.

Textbooks and current literature all speak of the variability in their number and location, describe the arterial supply from the inferior and sometimes superior thyroid artery, and carefully omit mention of the nerve supply. Heinbach [4] and others have attempted to chart their number and location with little success. Feeling that such a variability in location was not in accord with the anatomic arrangement of any structure in the human body, my associates and I undertook this study. It is based on the dissection of thirty cadavers in the anatomic laboratory and several fresh specimens in the autopsy room. Each specimen was subjected to histologic study [5] and only those which proved to be parathyroids were considered. Ginsburg [6] has called attention to the deceptive character of lymphoid tissue in this region. We were deceived not only by lymph nodes but also by thyroid tissue and even by adipose tissue. These errors have been discarded in forming our conclusions. Our skill in recognizing parathyroids improved with each dissection, and the incidence of error decreased as the series progressed. While our original intention was to study only the inferior parathyroids with the aim of finding their definite location, we became interested in the superior group and have incorporated some of our observations concerning them. A more detailed study of the upper group will be made and reported at a later date.

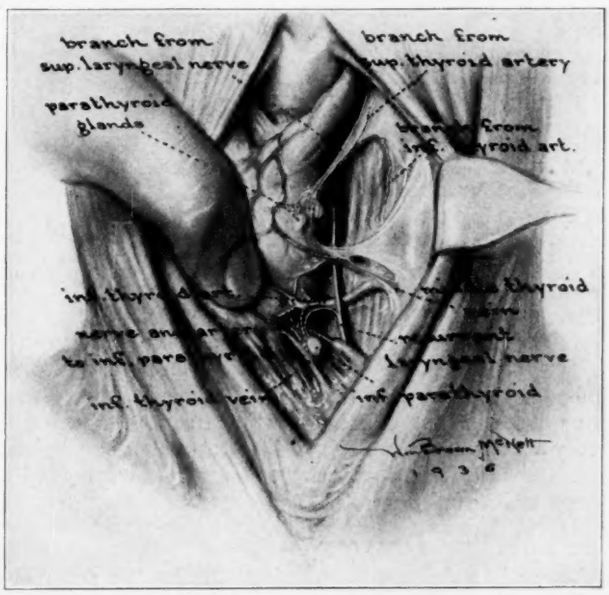


Fig. 1.—Artist's sketch of dissection by the author showing inferior parathyroid in ectopic position, superior parathyroid in position frequently found. Superior and inferior parathyroid stalk with nerves and arteries shown. Note the two glands derived from the superior stalk.

VARIATION IN NUMBER OF PARATHYROID GLANDS

On each side of the neck a branch of the inferior thyroid artery joins with a branch of the recurrent laryngeal nerve to form a "stalk" to the parathyroid gland. Similarly a branch from the superior thyroid artery is joined by a branch from the superior laryngeal nerve to form a "stalk" to the superior parathyroid gland (fig. 1). These four stalks are constant in number regardless of the number of parathyroids. Each of these four stalks described may lead to a single gland and that individual would have four parathyroid bodies. On the other hand, from any of these four stalks two or more parathyroids may arise (figs. 1 and 3). It is in this manner that the number of

From the Department of Anatomy, Temple University School of Medicine. This study was made possible through the kind cooperation of Professor John B. Roxby.

1. Sandström, quoted by Ginsburg.[6]
2. MacCallum, W. G.: The Surgical Relations of the Parathyroid Glands, Brit. M. J. **2**: 1282-1286, 1906.
3. Halstead, W. S., and Evans, H. M.: The Parathyroid Glandules: Their Blood Supply and Their Preservation in Operations upon the Thyroid Gland, Ann. Surg. **46**: 507-540, 1907.
4. Heinbach, W. F.: A Study of the Number and Location of the Parathyroid Glands in Man, Anat. Rec. **57**: 251-261 (Oct.) 1933.
5. Identification of sections was made by Dr. W. C. Pritchard of the department of histology, and Dr. Frank Konzelmann and Dr. Louis Soloff of the department of pathology.
6. Ginsburg, Nathaniel: Surgical Anatomy of the Parathyroids, M. Bull. Univ. of Pennsylvania **20**: 256, 1908; Surgical Importance of Parathyroid Glands and Closely Allied Lymph Nodes, J. A. M. A. **58**: 1668 (June 1) 1912.

parathyroids varies in different individuals. Churchill [7] and others report parathyroid tumors in the mediastinum. One of our dissections illustrated in figure 3 showed the stalk giving off two parathyroids and continuing down beneath the sternum into the mediastinal space and fusing with the fibrous tissue over the thymus. It could readily explain a mediastinal parathyroid. Lahey [8] and others have described parathyroids embedded in the thyroid gland. While in our dissections we did not encounter any, their presence can easily be accounted for according to our theory by the ingrowth of the inferior thyroid artery carrying with it the stalk of the parathyroid.

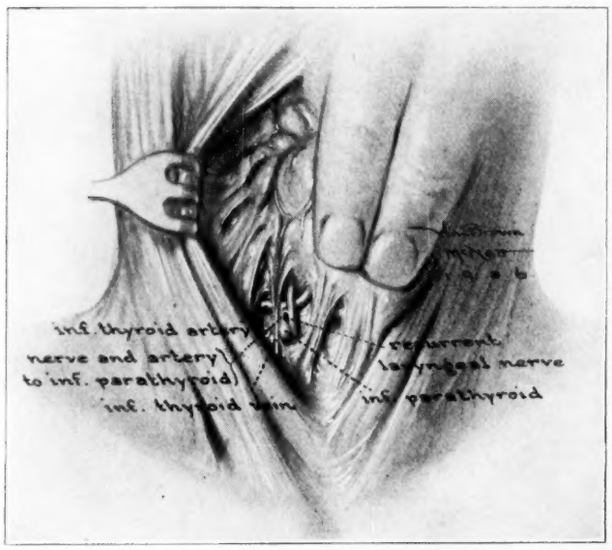


Fig. 2.—Normal location of the inferior parathyroid gland. Note that it is free from the thyroid gland at point of crossing of inferior thyroid artery and recurrent laryngeal nerve. Note the short stalk formed by the artery and nerve to the parathyroid gland and the close position of the thyroid vein.

PARATHYROID NERVES

There is a definite nerve given off by the recurrent laryngeal nerve at the point at which it crosses the main branch of the inferior thyroid artery. This inferior parathyroid nerve accompanies the parathyroid artery and enters the hilus of the inferior parathyroid gland. It appears to supply no other structure. As every one knows, the superior laryngeal branch of the vagus divides into an internal and an external branch. The external branch, which is much the smaller, passes downward to supply the cricothyroideus muscle. From this external branch a fine filament passes downward as the superior parathyroid nerve (fig. 1) and joins the company of the superior parathyroid artery.

We could find no description of these important parathyroid nerves. Maiman [9] carried out experiments on dogs to show that the vagus supplied the thyroid and parathyroid glands but gave no description of the nerves. Since such vital glands as the parathyroids derive their nerve supply so directly from such a highly specialized nerve mechanism as the nerves supplying the larynx, it might not be amiss to conjecture for a moment on the possibility of the physiologic study that suggests itself from the foregoing description.

7. Churchill, E. D.: Parathyroid Tumors Associated with Hyperparathyroidism, Surg., Gynec. & Obst. **58**: 255-271 (Feb.) 1934.
8. Lahey, E. H.: Clinical Diagnosis and Operative Technic of Parathyroidectomy, Surg., Gynec. & Obst. **60**: 1033-1051 (June) 1935.
9. Maiman, R.: Ztschr. f. Zellforsch. u. mikr. Anat. **22**: 20-28, 1934.

LOCATION AND DESCRIPTION

The typical location of the inferior parathyroid gland is shown in figure 2. The recurrent laryngeal nerve and inferior thyroid artery vary considerably in their location and course, but of necessity they always cross. It is at this point of crossing that the stalk to which I have referred is formed. This slender stalk is usually about 5 mm. long and the parathyroid body lies in the inverted V shaped niche formed by the artery and the nerve. Of the forty-four definitely identified inferior parathyroids, thirty-four were found in exactly this location. The remaining ten had stalks of variable length. Some were as long as 4 cm. These may be called ectopic glands and they were found in variable positions, depending, it seemed to us, on the pull exerted by the parathyroid vein, which is a tributary to the inferior thyroid vein. The glands, either in the normal habitat or in the ectopic position, were always very close to one of the inferior thyroid veins. Rarely did we find the inferior parathyroid gland in contact with the thyroid gland. It was, then, usually free from the thyroid, posterior to and below it, snugly enveloped in a rug of fat. Figure 3 (inset *a*) shows the fascia opened, exposing the fatty capsule. Inset *b* shows the capsule opened, exposing the gland with its stalk entering the hilus. This fatty tissue has a peculiar shape and color that distinguish it from the surrounding adipose tissue, and one comes to recognize it just as one does perirenal tissue. In fact, the similarity between embedded adrenal and parathyroid in its fatty capsule constantly impressed itself on us.

While we are not prepared to report on any definite position of the superior parathyroids, certain facts have been observed. The stalk is much longer than that of the inferior parathyroid. The arterial supply is usually from the superior thyroid artery, often joined by a branch from the inferior thyroid artery, as illustrated in figure 1. On one occasion it had a branch directly from the external carotid artery, which supplied no other structure. A frequent location of the superior

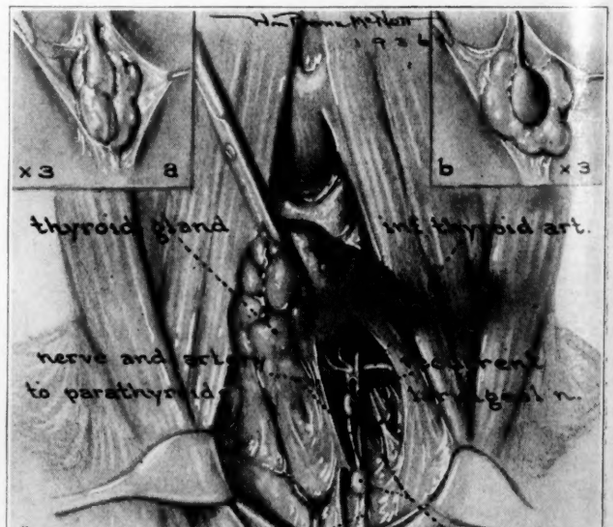


Fig. 3.—The inferior parathyroid stalk with upper gland in normal habitat. Lower gland ectopic. Stalk continuing into the mediastinum. Inset *a*, fatty capsule of parathyroid. Inset *b*, fatty capsule opened exposing gland with hilus of artery and nerve.

parathyroid body was about the middle of the thyroid gland, posterior to and near the trachea. In this location the parathyroid is in intimate contact with the thyroid gland. Whenever a parathyroid lies in juxtaposition to the thyroid it is naked, without fatty capsule, as contrasted to the typical description given when speaking of the inferior parathyroid, which does not lie in contact with the thyroid gland.

SUMMARY AND CONCLUSIONS

A new concept of the anatomy of the parathyroids is based on the constant development of four stalks made up of the parathyroid arteries accompanied by the parathyroid nerves. The nerves, I believe, are described for the first time. Based on our observation of a short inferior parathyroid stalk, the normal or typical location for the inferior parathyroid is given. Ectopic glands are accounted for by a long stalk and can often be found when not in the typical location by following this stalk. It is our hope that this contribution will lighten the difficult task of locating and identifying the parathyroid glands.

5126 North Broad Street.

MULTIPLE TUMOR SYNDROME IN THE MALE

CARCINOMA OF THE BREAST, PLEOMORPHIC SARCOMA OF THE THIGH AND NEUROFIBROMAS OF THE SKIN: REPORT OF A CASE

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AND
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We have observed an interesting combination of neoplasms in one individual, each having a different site of origin and location and each presenting an independent clinical problem. It is the combination of a malignant tumor of the thigh and papillary growths of the skin with the relatively infrequent carcinoma of the male breast that makes the case worthy of special notice.

As far as we can ascertain, these tumors have no interrelationship with one another. Yet the fact that the patient has the ability to form new growths from the derivatives of the various germ layers, two of the tumors being malignant and one benign, gives a new insight into neoplastic tendencies in man. Heretofore, single or multiple growths from the same germ layer have been noted, but the incidence of association of tumors and neoplasms derived from independent embryonal structures has not been extensively dwelt on.

REPORT OF CASE

A white man, aged 57, a Lithuanian, admitted to our service Jan. 14, 1935, complained of a large swelling on the anterior aspect of the left thigh, of six months' duration.

The patient stated that he had been entirely well up to six months before, at which time he noticed an itching sensation in the upper third of the left thigh. This area, which was about the size of a dime (18 mm.), was covered with small red spots, which itched so terrifically that he was forced to scratch them in order to obtain relief. A few days later the red spots on the anterior aspect of his thigh disappeared and were followed by what he termed "black spots," which became raised above the surface of the skin and took on a bluish hue after a few days. This itched only slightly and he was able to relieve himself by gently rubbing the raised area. Within six months this mass grew from the size of a hazelnut to a mass about the size of a small grapefruit. The only particular complaint at the time of examination was that his trouser leg would impinge on the mass and slightly irritate it, so he came in to have it excised.

The general history revealed nothing of special importance except that for a number of years he had worked in a tannery in which he had done a considerable amount of lifting of hides. Being a right-handed man he would brace the bundle with his left leg and throw it over his left shoulder. The force of the lift was transmitted over his left thigh, the left side of the abdomen and the left breast and occasionally over his right shoulder. Lately he had been working as a butcher in the capacity of a meat cutter, wherein he was obliged to handle sections of beef, pork and various meats of fairly large size in almost the same manner in which he handled the hides when he worked in the tannery.

On physical examination he did not appear to be acutely ill. He was rather obese. He was not especially perturbed about the growth on his thigh except that it was in his way when he was dressing and walking. The skin was normal except for two papillomas present on his back at the level of the eleventh thoracic vertebra to the right of the middle line.

The pulse was 88, temperature 97 F., respiration rate 20, and blood pressure 150 systolic, 90 diastolic. The head and neck were normal except for a flushed appearance of the face. The chest was of the emphysematous type.

Of especial interest were the breasts; the patient, however, had not noticed anything wrong. They were enlarged bilaterally; the left breast (fig. 1) was enlarged, indurated and slightly fixed to the underlying tissue. There was a purplish area in the region of the areola; the nipple was retracted with no secretion, and the whole mass had a slightly puckered appearance. The right breast was enlarged but was not fixed to the underlying tissues. The areola was not indurated and the nipple was protruding. The breast itself covered an area about the size of a quarter (24 mm.) and was very soft to the touch. No secretion was present.

The lungs were essentially normal, except for a slightly increased dulness over the chest anteriorly and with some diminution of the breath sounds in the areas of increased dulness.

The heart had a suggestive diastolic blow over the aortic area, associated with a tambour sound of the second aortic. The pulse was full and bounding, but the peripheral cardiac signs of aortic regurgitation were absent.

The abdomen and genitalia were essentially normal.

On the left leg (fig. 2) there was a well defined mass about the size of a small grapefruit on the anteromedial aspect of the left thigh at its middle. It was freely movable at its upper and lower poles and slightly adherent to the underlying structures at its base. The overlying skin was a purplish red, and in the center of the mass was an area about the size of a five cent piece (21 mm.) which was slightly elevated and was redder than the mass itself. Numerous distended veins were seen coursing through the mass, which was soft in consistency and not tender to the touch.

The right thigh and lower leg were essentially normal except that varicosities of both limbs were present.

The impression at the time of the physical examination was that of a sarcoma of the left thigh, which was possibly a fibrosarcoma; however, a rhabdomyosarcoma was considered. In the differential diagnosis the following conditions had to be ruled out: endothelioma, angioma, varix, hypernephroma and syphilis.

In view of the clinical appearance in the breast, the following were considered: carcinoma, sarcoma and gynecomastia, secondary to either a tumor of the testicle or a disturbance of the anterior pituitary gland.

Laboratory examinations revealed hemoglobin, 80 per cent; red blood cells, 4,730,000: white blood cells, 7,450; polymorphonuclear leukocytes, 48 per cent; eosinophils, 1 per cent; basophils, 0; lymphocytes, 43 per cent; monocytes, 8 per cent. Urinalysis was negative; the Aschheim-Zondek test was nega-

tive; a complete roentgen study of all the bones, the chest and the abdomen was negative for metastases, and the Wassermann reaction was negative.

The patient submitted to surgery four days after his admission to the hospital, and the tumors of the left thigh and the left breast were excised and submitted to the surgical pathology division for examination by Dr. Benjamin Neiman, senior resident pathologist at Cook County Hospital.

Fig. 1.—Left breast enlarged, with induration and retraction of the nipple.

"The mass from the left breast consisted of an elliptical piece of skin containing the subcutaneous tissues in the center of which was a nipple. The specimen measured 8 by 3 cm. Directly beneath the nipple was a node 2 cm. in diameter which

TABLE 1.—*Tabulated Course of Roentgen Therapy*

Date	Kilovolts	Milliamperes	Distance	Filter	Time	Roentgens
2/—/35	200	30	50	Copper, ½ inch; aluminum, 1 inch	5.2	400
2/28/35	200	30	50	Copper, ½ inch; aluminum, 1 inch	5.5	400
4/ 1/35	200	30	50	Copper, ½ inch; aluminum, 1 inch	4.5	400
4/ 8/35	200	30	50	Copper, ½ inch; aluminum, 1 inch	4.5	400
4/16/35	200	30	50	Copper, ½ inch; aluminum, 1 inch	4.5	400
4/24/35	200	30	50	Copper, ½ inch; aluminum, 1 inch	4.5	400
4/30/35	200	30	50	Copper, ½ inch; aluminum, 1 inch	4.5	400
5/ 7/35	200	30	50	Copper, ½ inch; aluminum, 1 inch	4.5	400

Area: Irradiation of left breast and left thigh done at same visit

consisted of multiple cysts up to 5 mm. in diameter, containing a clear, blood-tinged fluid. In the center of this node was a round whitish firm granular area, measuring 6 mm.

"The whitish nodule seen grossly was composed of a cellular structure with very little stroma (fig. 3). The cells were anaplastic, showing many mitotic figures and arranged in glandular formations. The cysts seen grossly about the nodule were composed of dilated ducts lined by proliferated epithelium. The lumen was filled with desquamated epithelial and red blood cells.

"The mass from the left thigh consisted of a piece of skin and subcutaneous tissue, 13 by 11 by 7 cm. The overlying skin was a purple gray. In approximately the center of the specimen there was a well defined, firm, nonfluctuant node 1.5 cm. in diameter. To the right of this node was a larger and less well discrete swelling 4 cm. in diameter, which was slightly fluctuant. On sectioning, the mass was composed of a 10 cm. node; this node was made up of confluent smaller nodes, pale purple, gray and mottled with purple red, soft and brainlike in consistency and fusing with the surrounding tissues.

"The tumor consisted of pleomorphic cells and the stroma was scant (fig. 4). There were many large multinucleated cells. The nuclei of these were bizarre in shape. The cytoplasm was ample and oxyphilic. Atypical mitotic figures were present and very prominent. Many of the cells had an elongated cytoplasm with fusiform nuclei. The cytoplasm was in intimate relationship with the hyalinized ground substance. In places regressive changes were present, leaving only ghost structures of preexisting tumor cells. A section taken with the overlying skin revealed the tumor to be in the subcutaneous tissues, having its origin either in the deep fascia or in the muscle.

"Phosphotungstic acid hematoxylin stain did not reveal cross striations, but the pleomorphism of the histologic picture suggested a myogenic origin.

"Microscopic examination of the node removed from the breast showed that it was obviously an adenocarcinoma.

"The node received at a subsequent date, which had been removed from the skin of the back, consisted of a pea-sized nodule surrounded by a small amount of skin.

"At the junction of the papillary and reticular layer of the cutis there was an irregular, sharply circumscribed and moderately vascular node, which consisted of a finely fibrillary ground substance that stained a pale purple gray in contrast to the bright red surrounding collagenous ground substance.

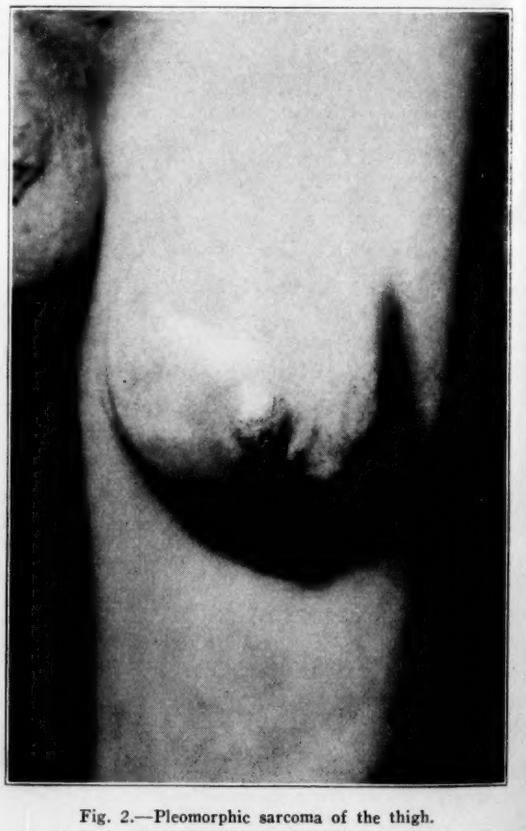

Fig. 2.—Pleomorphic sarcoma of the thigh.

Encased in the finely fibrillary ground substance there were oval nuclei with a finely granular dense chromatin net. The nuclei were surrounded by a narrow rim of homogeneous cytoplasm that was often not sharply separated from the ground substance. Here and there the nuclei showed a tendency to palisade formation.

"The node removed from the skin gave the histologic picture of a benign neurofibroma. It in no way bore any resemblance to the malignant neoplasm of the thigh. Since the tumor of

the thigh was not neurogenic in origin it could not be interpreted as a malignant transformation of a neurofibroma, which would be very tempting from a clinical standpoint."

The postoperative treatment consisted of high voltage roentgen therapy equivalent to one-half erythema dose weekly. The patient was not always punctual in keeping his appointments, however, and consequently some weekly doses were missed. The high voltage irradiation was applied over the left side of

Fig. 3.—Section showing the carcinomatous involvement of the breast. (Hematoxylin and eosin, × 150.)

the chest and the left thigh in the regions where the tumors had been excised. The patient has been followed postoperatively for approximately four months and to date has shown a slight increase in weight and no evidences of metastasis at present (table 1).

Kufanoff,[1] in a review of the literature and on the basis of three cases that he had observed, concluded that tumors of the male breast are rare, that cures are more uncommon than in the female, and that benign neoplasms in the male breast are more rare than malignant growths.

Kummer[2] states that cancer in the male breast is most frequent at 60 but is encountered in all ages from 12 to 91, that the right side is more often affected than the left and that bilateral disorders are rare.

Fessler[3] states that "the normal male breast shows gland vesicles from puberty up to the thirtieth year but neither before nor after."

Muelleder[4] approves of prophylactic secondary irradiation at intervals after operation for a prolonged period.

According to Speed,[5] tumors of the male breast furnish 1 per cent of all breast tumors that afflict both sexes. The predisposing causes of male breast tumors are obscure. Trauma due mainly to occupation may have an influence but it cannot be definitely analyzed. However, the effect of chronic irritation from occupation pressure or the pressure of clothing may be easier to appreciate.

Samples of a male breast tumor following a single trauma are rare. Manger, in seventy-one collected cases in men, found a preceding trauma in twenty-five; Yanamota, in 257 cases, found a traumatic history in 61.10 per cent, and 10 per cent of all his patients gave a hereditary cancer history.

Wainwright,[6] in an exhaustive study of 408 cases, found that the left side was affected more frequently, that the average age was 52.6 years, and that symptoms of carcinoma of the breast in men differ from those of carcinoma of the breast in women only in frequency of onset. He concludes that the end results in men are not as good as results in women.

Neal and Simpson[7] studied 152 male breasts among 5,314 breasts encountered in 54,430 specimens submitted for pathologic diagnosis. Non-neoplastic diseases made up 35.52 per cent of the total cases; benign tumors 39.74 per cent, and malignant tumors 23.02 per cent.

Cadore[8] of the University of Pisa, in a study of six tumors of the male breast seen between 1911 and 1928, reports the incidence of these tumors as 0.55 per cent of all breast tumors seen during that period.

Gioia and Bianchi[9] agree with Wilms that the histologic pathology depends on whether the primordial cells have arisen before or after the differentiation of the three blastodermic layers.

Gutierez and Monserrat[10] found the following relation in Argentina: malignant tumor of the male breast, 63.1 per cent; benign tumors of the male breast, 36.9 per cent.

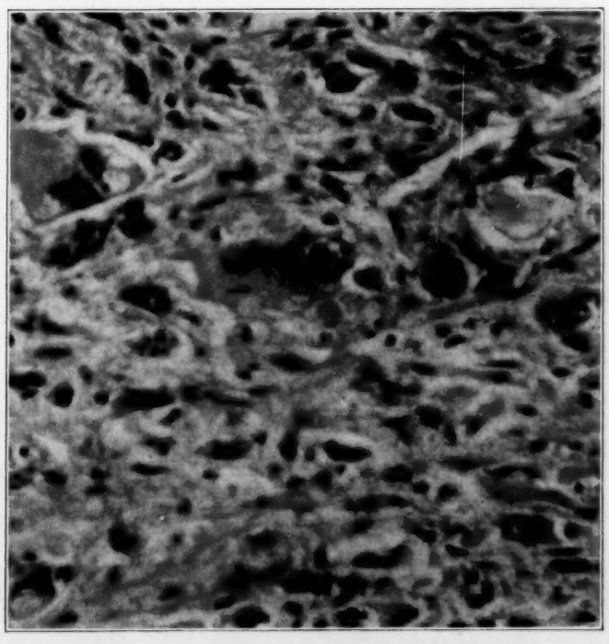

Fig. 4.—Section showing the pleomorpic sarcoma of the thigh. Note the marked pleomorphism. (Hematoxylin and eosin, × 300).

Dessaint and Plantevin[11] report two cases of cancer in the male breast.

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10. Gutierez, Alberto, and Monserrat, J. L.: Breast Tumors in Man, Rev. de cir. **8**: 549-578 (Dec.) 1929.
11. Dessaint and Plantevin: Cancer of the Male Breast: Two Cases, Bull. Assoc. franç. pour l'étude du cancer **20**: 94 (Jan.) 1931.

Guez [12] states that cancer of the male breast is very rare in France.

In Rosh's [13] studies of a series of 207 breast carcinomas at Bellevue Hospital during the past six years, six, or 3 per cent, have been in the male. He is convinced of the effectiveness of postoperative irradiation of breast carcinoma in the male as well as in the female.

Schreiner [14] reviews 1,664 cases of diseases of the breast seen in the tumor clinic of the New York State Institute for Malignant Diseases, and thirty-one were in the male.

Neal,[15] in an exhaustive study, concludes that:

1. The most frequent lesions of the male breast are nonneoplastic processes (46.42 per cent).

2. The second most frequent lesions of the male breast are the benign tumors (34.09 per cent).

3. The third most frequent lesions of the male breast are the carcinomas (16.23 per cent), tumors of skin origin account for 16 per cent of these, and those of duct or acinus origin account for 84 per cent.

4. Sarcomas constitute 3.25 per cent of the lesions of the male breast.

5. Carcinomas of the male breast were responsible for 1.24 per cent of the carcinomas of the breast in both sexes.

TABLE 2.—*Bick's Histologic Classification of Cases*

Type		
Hemangioma		11
Sarcoma		20
Fibrosarcoma	13	
Neurofibrosarcoma	4	
Myxosarcoma	1	
Myosarcoma	1	
Chondrosarcoma	1	
Fibroma		1
Neurofibrosarcoma (excluding von Recklinghausen's multiple neurofibromatosis)		2
Carcinoma		1
Total		35

6. Of the sarcomas of the breast in both sexes, 19.61 per cent were found in the male breast.

7. Carcinomas are eighty times proportionately more prevalent in the female breast than in the male.

8. Sarcomas are sixteen times proportionately more prevalent in the male breast than in the female.

9. Carcinomas occur in the male breast only five times more frequently than do sarcomas, whereas in the female breast carcinomas are seen seventy-nine times more often than are sarcomas.

10. Of all the lesions of the breast, 3.31 per cent occurred in men.

11. The average age of patients at the time of observation for carcinoma was 57.7 years, and for sarcoma, 39.7 years.

12. The present-day standardization of hospitals and laboratories is promoting a better and more extensive diagnosis of tissues and more dependable records from which statistics may be compiled.

SKELETAL MUSCLE SARCOMA

Bick [16] in a recent article collected a series of thirty-five cases of skeletal muscle sarcoma and says: "Tumors involving the skeletal muscles, while not of frequent occurrence, are by no means rare. Of these, the two most common types are haemangeomata and sarcomata." He lists his series of cases according to their histologic classifications (table 2). He writes:

Sarcoma may involve the skeletal muscle in several ways. First, the tissue of origin may be intramuscular; that is, sarcolemma, perimysium, interfascicular connective tissue, the visceral layer of muscle sheath, perineural or perivascular connective-tissue sheaths. Secondly, the tumor may infiltrate the muscle body from a source outside, but in direct contact with it, such as for example, a fibrosarcoma of periosteal or intermuscular fascial origin. This infiltration by direct contact is also the source of intramuscular osteo- and chondrosarcomata. Thirdly, the muscle body may be involved by a metastatic process as occurs when a large secondary fibrosarcoma appears in the muscles and surrounding soft tissues of the thigh following the removal of a supposedly benign fibroma from the plantar surface of the foot.

The statement is repeatedly made that sarcoma occurs most commonly in youth or the young adult. However, fibrosarcoma of the extremities may occur at any age and in fact, was found most frequent in the fourth and fifth decades. The ages of the twenty cases listed range from 10 to 60, appearing with maximum frequency between 20 and 40. The age groups for fibrosarcoma and neurofibrosarcoma are similar. This is in marked contrast to a characteristic age of origin for intramuscular hemangiomas. The latter in all probability, invariably a congenital lesion, is usually first noted in early childhood.

Of nine cases of fibrosarcomata in which the duration of tumor was noted, in all but one it was of a year or less. In one case it was two and one-half years. . . . In four cases of neurofibrosarcomata the duration was from seven to twenty-six years. The long duration of a static neurofibrosarcoma followed by a rather brief period of rapid growth often, but not always after trauma, is characteristic of tumors of nerve sheath derivation. Likewise, it is not unusual for a fibrosarcoma of the anterior abdominal wall to be discovered only at the time of pregnancy when this tension of the musculature brings a hitherto unnoted sausage shaped tumor into prominence Although the muscle tumor of relatively short duration suggests a diagnosis of fibrosarcoma, one of longer duration does not necessarily signify benignity. In the presence of a neoplasm which has existed from childhood, hemangioma must be considered; in one of long duration, however, an onset later in life, a neurofibrosarcoma, is a probable diagnosis.

The sites of predilection for intramuscular sarcomas are the thigh, abdominal wall and forearm, sixteen of the twenty cases occurring in these regions with approximately equal frequency. Two of the neurofibrosarcomas occurred in the leg and two in the forearm. Fibrosarcomas occurring in the abdominal wall musculature have long been known under the old clinical name of "desmoid"; that is, fibrous tumor. These usually involve the rectus abdominis of either side.

Pain is rarely an early symptom in most instances, although a minor ache may have been present at recurring intervals; actual pain either is never experienced or appears only when the tumor is well advanced in size. When present, it is apt to be described as "rheumatic." Unlike bone sarcoma, the pain is seldom constant. The presence of pain radiating down a specified nerve distribution is suggestive of but not pathognomonic for a neurogenic tumor or neurofibrosarcoma. Any muscle tumor which in its growth involves a nerve supply will produce radiating pain. Muscle sarcomata may or may not be tender; usually they are not. However, occasionally one finds some moderate pain present for a while, after a slight trauma.

Ewing,[17] Stout [18] and Cheatle and Cutler [19] make no reference to multiple tumors of the leg and skin in association with a tumor of the breast.

SUMMARY

A white man, aged 57, clinically and pathologically exhibited a multiple tumor syndrome, each neoplasm being independent of the other and arising from dif-

12. Guez, J.: Cancer of the Male Breast in a Native, Tunisie méd. **25**: 123, 1931.
13. Rosh, R.: Cancer of the Male Breast, Am. J. Surg. **13**: 514 (Sept.) 1931; abstr. Am. J. Cancer **16**: 833 (July) 1933.
14. Schreiner, B. F.: Tumors of the Male Breast, Based on a Study of 31 Cases, Radiology **18**: 90-92 (Jan.) 1932.
15. Neal, M. P.: Malignant Tumors of the Male Breast, Preliminary and Abbreviated Report, South. M. J. **25**: 841-844 (Aug.) 1932; Malignant Tumors of the Male Breast, Arch. Surg. **27**: 427-465 (Sept.) 1933.
16. Bick, E. M.: Skeletal Muscle Sarcoma, Ann. Surg. **99**: 949-956 (June) 1934; abstr. Internat. S. Digest **18**: 112-114 (Aug.) 1934.
17. Ewing, James: Neoplastic Disease, ed. 3, Philadelphia, W. B. Saunders Company, 1928.
18. Stout, A. P.: Human Cancer, Philadelphia, Lea & Febiger, 1932.
19. Cheatle, G. C., and Cutler, Max: Tumors of the Breast, London, Edward Arnold & Co., 1931.

ferent anlagen; the tumors were removed surgically and up to the present date our patient has shown no evidence of metastases. He appears to be progressing physically under the course of radiation therapy as outlined.

CONCLUSIONS

1. Carcinomas of the male breast are responsible for 1.24 per cent of the carcinomas of the breast in both sexes.

2. Carcinomas are eighty times more prevalent in the female breast than in the male breast.

3. Surgical excision combined with postoperative irradiation has been found to be the treatment of choice.

4. Skeletal muscle sarcomas may be derived from any of the contiguous and continuous structures anatomically associated with the muscle; treatment here is preferably surgical excision followed by postoperative irradiation.

5. Neurofibromas of the skin are relatively benign neoplasms and in this instance did not show any evidence of malignant change.

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ALOE VERA IN THE TREATMENT OF ROENTGEN ULCERS AND TELANGIECTASIS

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The use of the fresh whole leaf of aloe vera in the treatment of roentgen dermatitis was suggested by C. E. and Creston Collins.[1] Early in 1935 they reported the case of a woman, aged 31, who had had a severe roentgen dermatitis of the left forehead following a depilating roentgen treatment. Various local treatments were tried without effect, and exfoliation and severe itching persisted at the treated site. The patient received a local application of the fresh whole leaf of aloe vera to allay the itching. Within twenty-four hours the sensation of itching and burning subsided and the condition progressively improved within the next five weeks and showed "complete regeneration of skin of the forehead and scalp, new hair growth, complete restoration of sensation, and absence of scars."

Radiation sequelae have been classified by Wise and Sulzberger[2] as "(1) pigmentation, (2) telangiectasis, (3) sclerosis, (4) keratoses, (5) persistent desquamation, (6) wrinkling, (7) atrophy, (8) ulceration and (9) cancer." In their hands sequelae characterized by pigmentation, telangiectasis and sclerosis have not responded favorably to treatment with solutions and ointments impregnated with thorium X, radium salts or radon. Ulcerative lesions exhibiting no evidence of malignant degeneration would, of course, occasionally respond to ointments of these types, although Wise and Sulzberger state that Dr. Miescher of the Zurich clinic, who has had a wide experience with thorium X, radium and radon preparations in the treatment of x-ray sequelae, has abandoned these remedies and employs other palliative as well as surgical methods of treatment. In this country most dermatologists and surgeons have treated radiation ulcers by surgical removal of the affected tissue, closing the defect by sutures, grafts or skin flaps.

Following a personal communication from Dr. Creston Collins in 1934, in which he warned me that results could not be expected in x-ray sequelae of more than two years' duration, I began the use of the fresh aloe vera leaf in the treatment of two cases of x-ray telangiectasia resulting from ill advised attempts at x-ray depilation by local advertising concerns, and in one case of radium telangiectasia of ten years' duration. Because of the difficulty of applying the whole leaf directly to the areas in question, I scraped out the intestinal contents of the aloe vera leaf and mixed it with an equal quantity of aquaphor and had the patient massage this into the skin every night.

The aloe vera leaf contains a large quantity of light yellowish green material having about the color and consistency of lemon jello; it is the intestinal material that is used for local application. The directions given by C. E. and Creston Collins are to spread the leaf lengthwise or cut it into thick cross sections, macerate the intestinal material, and while it is still fresh to apply liberal quantities to the area to be treated, covering it with a neutral, nonporous substance such as waxed paper. A bandage is used to keep it in place.

When a piece of the leaf is applied in this way to an open lesion and removed after several hours, the resinous, gelatinous substance of the leaf has apparently disappeared, leaving only the hard outside shell. It would appear that this substance is absorbed by the skin or eroded tissue.

Since October 1934 seven cases of x-ray telangiectasia and the one case of radium telangiectasia have been treated by this method. No improvement was obtained as regards the degree of telangiectasia but the texture of the skin was improved in all cases. One could not expect that the telangiectasia resulting from excessive x-ray application would be improved by any method that did not include destruction of the enlarged vessels.

Fig. 1 (case 2).—Appearance of hands Dec. 23, 1935 (photograph courtesy of Dr. George Pfahler).

My purpose in this paper is to present the remarkable improvement obtained in two cases of x-ray ulceration with the hope of stimulating interest in what promises to be a revolutionary method of treatment for early x-ray damage to the skin and ulceration of the skin resulting from x-rays:

CASE 1.—Mrs. C., aged 60, received prolonged x-ray treatment for an eczema of the hands prior to 1920. In 1932 she

1. Collins, C. E., and Collins, Creston: Roentgen Dermatitis Treated with Fresh Whole Leaf of Aloe Vera, Am. J. Roentgenol. **33**: 396 (March) 1935.

2. Wise, Fred, and Sulzberger, M. B.: Year Book of Dermatology and Syphilology, 1935.

developed fissuring and superficial ulceration of the palmar surface of the right forefinger and thumb. This condition gradually became worse. In June 1935 treatment was started with the aloe vera ointment made as described, with marked improvement in the condition of the hands and complete healing by September 1935. The patient has found it necessary to continue the use of the ointment in order to keep the skin in good condition.

In view of the warning of Dr. Creston Collins that little could be expected in the treatment of x-ray sequelae of more than two years' duration, the results in this case were most encouraging.

The following more striking case illustrates the value of following the method originally suggested by Dr. Collins of employing the plant itself directly to the lesions:

CASE 2.—Dr. S., aged 43, in 1933 while attempting to remove a needle from a patient's finger under fluoroscopic direction sustained a prolonged exposure to the x-rays, resulting in the production of an acute roentgen dermatitis involving the thumb and the first, second and third fingers of the left hand. This dermatitis appeared approximately two and one-half weeks after exposure. Under application of thymol iodide powder the local inflammation and exudation diminished and the lesion partially healed. In November 1935 the skin of the burned area broke down with the development of superficial ulceration, considerable exudation and crusting. This was the condition

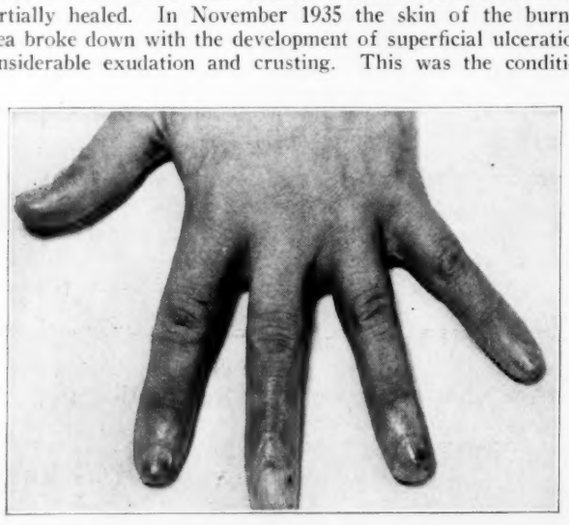

Fig. 2 (case 2).—Appearance of hands Jan. 15, 1936, three weeks after beginning the application of aloe vera.

of the hand when the patient first consulted me at the suggestion of Dr. John H. Stokes, who was familiar with my interest in the treatment of any available roentgen sequelae with aloe vera. The skin surrounding the ulcerating area showed telangiectasia and atrophy. There could be no doubt of the fact that the condition of the fingers and thumb was due to x-ray effects, and Dr. Stokes concurred in the diagnosis of x-ray ulceration.

Treatment was immediately started with aloe vera, the leaf being applied according to directions at night, and an ointment of aloe vera (Alvagel, as prepared by Dr. Creston Collins) during the day. Applications of the ointment were covered directly with cellophane to promote skin absorption. In three days there was a marked improvement in the appearance of the fingers and in three weeks the skin was virtually healed, as is best demonstrated by the accompanying illustrations.

SUMMARY

In view of the unfortunate but nevertheless occasional burns that may result from overexposure to roentgen rays, any therapeutic agent that offers a hope of quick healing and relief of discomfort in such sequelae is worthy of further study. From the cases reported it would seem that x-ray ulceration, even of several years' duration, will respond to the use of aloe vera. The permanence of results can be determined only by watching cases thus treated over a period of time.

Little can be expected in the treatment of telangiectasia as a result of irradiation beyond a smoothing and softening of the affected skin.

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RELAXATION OF THE SYMPHYSIS PUBIS IN PREGNANCY

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Over two centuries ago Mauriceau,[1] in refuting the opinion that the pubic bones separated in labor, wrote "Others are of the opinion . . . that these bones, thus separated at the time of labour, are thereto by degrees a little before disposed by the slimy humours which flow forth from about the womb, and these mollify the cartilage, which at other times join them firmly." In the light of present-day knowledge this opinion of "others" is of great interest, for relaxation of the symphysis pubis during pregnancy appears to be an established fact.

Relaxation of the pelvic joints during pregnancy has been recognized for many years. As early as 1870 Snelling[2] wrote that "relaxation of the pelvic articulations becomes apparent suddenly after parturition or gradually during pregnancy, permitting a degree of mobility which hinders locomotion and gives rise to the most alarming and distressing sensations." However, it is only within a comparatively short time that accurate observations have been made showing the frequency and degree of separation of the symphysis pubis. In this regard the contributions of Heyman and Lundqvist[3] in 1932 and Abramson, Roberts and Wilson[4] in 1934 are outstanding. The first named authors conclude that the symphysis increases in width in all pregnant women and decreases in width in the postpartum period. In their series of seventy-four pregnant women (forty-eight primiparas, twenty-six multiparas) the average width of the symphysis was within 7 and 8 mm., with a maximum width of 12 mm. The greatest increase was found within the fifth and seventh months of the antepartum period. However, no measurements were made before the fifth month of the antepartum period.

The second named authors studied normal multiparas, normal males, pregnant multiparas and twenty-five consecutive primiparas and concluded that relaxation of the symphysis begins in the first half of pregnancy, progressing but slightly in the last three months, and that retrogression begins immediately following delivery and is usually completed by the end of from three to five months. They also conclude that there is no essential difference between the behavior of the pelvic articulations in primiparas and in multiparas.

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This study was made possible through the Research Funds of Yale University School of Medicine.

1. Mauriceau, François: The Diseases of Women with Child and in Childbed, Translated by Hugh Chamberlen, M.D., London, A. Bell, 1727.

2. Snelling, F. G., quoted by Litzenberg, J. C.: Sacro-Iliac Joints in Obstetrics and Gynecology, J. A. M. A. **69**: 1759 (Nov. 24) 1917.

3. Heyman, J., and Lundqvist, A.: The Symphysis Pubis in Pregnancy and Parturition, Acta obst. et gynec. Scandinav. **12**: 191, 1932.

4. Abramson, Daniel; Roberts, S. M., and Wilson, P. D.: Relaxation of the Pelvic Joints in Pregnancy, Surg., Gynec. & Obst. **58**: 595 (March) 1934.

In the present communication the observations that are reported were derived from a study of 100 primiparous women at different stages of pregnancy, with a brief report of a case in which the pelvic relaxation incident to pregnancy was marked and was associated with severe symptoms. This report of the observations in 100 primiparous women may be said to be essentially that of a consecutive group of individuals, since it represents a study of roentgenograms taken for pelvimetric purposes during a six months period.

Fig. 1.—Appearance Feb. 4, 1935, at seventh month of fifth pregnancy.

The method of roentgen pelvimetry employed is the so-called grid method, which was developed by my associates and myself in our clinic and is believed to be accurate.[5] In the observations that comprise the present report the narrowest diameter of the symphyseal widening was chosen as the point of mensuration. The grouping of this series into periods of pregnancy noted in months was based on the size of the shadow of the fetal head as shown in the roentgenograms. Those instances in which no fetal head shadow was visible I have grouped as belonging to the first half of pregnancy, four months or less. With regard to roentgenograms taken after the fourth month of pregnancy I may say that my experience in interpreting pelvic roentgenograms has led me to assume a reasonable accuracy in determining the duration of pregnancy in months from the size of the shadow of the fetal head.

Observations in One Hundred Primiparous Women

	Number of Cases	Average Symphyseal Spread
Early pregnancy, fourth month or less	28	0.36 cm.
Fifth month	9	0.42 cm.
Sixth month	4	0.52 cm.
Seventh month	12	0.49 cm.
Eighth month	13	0.55 cm.
Ninth month	34	0.58 cm.
Symphyseal spread in the first half of pregnancy		
0.2 cm.	6 times	
0.3 cm.	9 times	
0.4 cm.	4 times	
0.5 cm.	8 times	
0.6 cm.	1 time	
Symphyseal spread in the latter half of pregnancy		
0.3 cm.	10 times	
0.4 cm.	10 times	
0.5 cm.	23 times	
0.6 cm.	15 times	
0.7 cm.	7 times	
0.8 cm.	4 times	
0.9 cm.	2 times	
1.0 cm.	1 time	

The observations in 100 primiparous women are summarized in the accompanying table. In the twenty-eight cases of the first half of pregnancy the minimum spread was 0.2 cm. and the maximum 0.6 cm. In the seventy-two cases of the second half of pregnancy the minimum spread was 0.3 cm. and the maximum 1 cm.

It may be interesting to note that in the series recorded the pelves presented the following types according to our classification:[5] round type, forty-five times; female type, thirty-seven times; anthropoid type, eighteen times. However, no relationship between the amount of symphyseal relaxation and pelvic type was apparent.

There is no doubt that pelvic instability, incident to pregnancy changes in the pelvic joints and associated with symptoms of discomfort, is far more common than is usually supposed. These symptoms may include pain in the symphyseal region, backache and localized pain in one or both sacro-iliac joints and difficulty in normal locomotion. Such pelvic instability may assume major proportions, as is witnessed in the case here briefly reported:

Mrs. H. R., a white married woman, aged 28, was first seen in the Womans Clinic of New Haven Hospital Sept. 9, 1929, in the fourth month of her second pregnancy. Her first pregnancy had ended at the eighth month with the normal delivery of a 6 pound (2,700 Gm.) baby. She was not seen again during the second pregnancy until labor had begun, Feb. 20, 1930. At that time she entered the hospital and was delivered spontaneously of a 3,670 Gm. baby. The puerperium was uneventful.

The patient was next seen Feb. 22, 1931. At that time she was eight months' pregnant and complained of difficulty in walking, which had existed for a period of four months, and stated that she was troubled by her legs "giving out." At the time of admission to the hospital she was unable to stand without assistance. Roentgenologic examination showed an abnormal separation of the symphysis pubis with relaxation at the sacro-iliac joints. By the use of a sacro-iliac belt and complete bed rest the patient became asymptomatic. She remained in the hospital and on March 14 was delivered normally of a 3,560 Gm. baby after a seven hour labor. Two weeks later examination showed the separation of the symphysis to be much less but still greater than the limits of normal. The patient was discharged from the hospital on the fifteenth day post partum.

Fig. 2.—Appearance Nov. 6, 1935, at eighth month post partum.

She was next seen in the clinic April 6, 1933, at which time she was seven months pregnant. There was considerable tenderness on palpation of the symphysis pubis and a complaint of pain in the left hip whether sitting or walking. Again a sacro-iliac belt was applied, which gave considerable relief. She was delivered spontaneously on June 7 of a 3,850 Gm. baby. The puerperium was normal except for the complaint of pain in the region of the symphysis and hip joints. During this postpartum period she was placed in a pelvic sling in a Balkan bed. On her discharge from the hospital she resumed the use of a sacro-iliac belt.

On her next admission to the hospital, Aug. 18, 1934, she stated that her last period had occurred two months previously. Examination showed that the patient was pregnant. After the sixth month of this pregnancy she complained of marked pain in both hips, which was aggravated by motion and weight bearing. Feb. 1, 1935, the pain was so severe that she was

5. A description of the technic may be found in Thoms, Herbert: The Obstetric Pelvis, Baltimore, Williams & Wilkins Company, 1935, p. 35.

unable to sit or lie with any comfort except at brief intervals. She was admitted to the hospital and placed in a pelvic sling, which as before gave relief (fig. 1).

Because of the unusual past history, delivery by cesarean section with sterilization was advised, to which the patient and her husband consented. Accordingly on March 23 cesarean section followed by supravaginal hysterectomy was performed. Since the operation the patient has been more comfortable and the separation of the symphysis as shown by roentgenologic examination has decreased to about 0.5 cm. Nevertheless, at the present time she complains of marked tenderness in both gluteal regions, which is worse at night, and the orthopedic consultant feels that eventually she will need an operation to correct the abnormal pelvic mobility (fig. 2). In this instance trauma did not seem to be an etiologic factor. There was no history to support this as a cause and the labors were easy and spontaneous.

As early as 1812, LeGallois [6] pointed out that in the female guinea-pig the pelvis is only about half the size of the fetal head and that before parturition takes place the ligaments joining the pubis becomes thick, soft and malleable so that the pubes gradually separate. Knox [6] in 1839 observed a similar process in the pregnant seal, and Barlow [6] in 1854 described somewhat similar changes in the pregnant cow, particularly in the sacro-iliac joints. In 1932 Hisaw [7] was able to isolate from the blood of guinea-pigs, dogs, cats, sows, mares and rabbits during pregnancy a substance which, when injected into the virgin guinea-pig at estrus, would produce in a few hours the same relaxation of the pelvic ligaments noted in the same animal before parturition. More recently Gardner [8] has reported similar results in male mice following the injection of "folliculin benzoate."

From the investigations of the authors quoted it seems probable that the mechanism of pelvic relaxation during pregnancy in the human species is one of hormonic control.

CONCLUSIONS

1. Pelvic joint relaxation, especially that of the symphysis pubis, is manifested in normal pregnancy.
2. From the examination of a series of 100 primiparous women at different stages of pregnancy it would appear that this relaxation is a progressive phenomenon.
3. The degree of pelvic relaxation accompanying pregnancy may assume serious proportions, as noted in the case presented.
4. Recognition of symptoms suggesting pelvic relaxation should demand thorough roentgenologic investigation in order that early treatment may be instituted.
5. Valuable information may be gained from the routine roentgen pelvimetry of all primiparous women.

6. Quoted by Lynch, F. W.: The Pubic Articulations During Pregnancy, Labor and the Puerperium, Surg., Gynec. & Obst. **30**: 575 (June) 1920.
7. Hisaw, F. L.: Sex and Internal Secretions, 1932. Hisaw and others: J. Am. Chem. Soc. **54**, 1932, quoted by Abramson, Roberts and Wilson.[4]
8. Gardner, W. V.: Pelvic Changes Occurring in Male Mice Receiving Large Amounts of Folliculin Benzoate, Proc. Soc. Exper. Biol. & Med. **33**: 104 (Oct.) 1935.

Vitamin Insurance in Winter.—Vitamin D, like vitamin A, can be stored in the body to an important extent; and the demands of pregnancy and lactation can be met in part by drawing upon the bodily store of the mother. As insurance, however, it is well to provide liberal intakes of vitamin D to pregnant and nursing mothers and to breast-fed as well as bottle-fed infants. Fish-liver oils, and some of their concentrates, have the advantage of furnishing both vitamins A and D, and are probably desirable supplements to the diets of all children during the winter months.—Sherman, H. C.: Food and Health, New York, Macmillan Company, 1934.

THE INCREASING IMPORTANCE OF PNEUMOTHORAX THERAPY IN PULMONARY TUBERCULOSIS

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Collapse therapy is not new, either in theory or in application, but after a long period of development has become increasingly popular in this country within the last decade. Artificial pneumothorax was suggested as a form of treatment for pulmonary tuberculosis by James Carson in England in 1821 as "simple, safe and complete." It was discussed by Forlanini in 1882, the very year in which Koch announced the discovery of the tubercle bacillus, and was applied by him clinically in 1888. It was practiced in this country as early as 1898 by John B. Murphy. A considerable number of papers on the subject have appeared regularly since, but until recently collapse therapy has made relatively little progress in this country. Pneumothorax has been regarded as a sanatorium procedure; the recognized indications were narrow and the number of cases treated comparatively few. On the other hand, with the rapidly increasing application of all forms of collapse therapy, therapeutic pneumothorax is now probably overdone. Nevertheless, those who have long been acquainted with the hardships and suffering caused by tuberculosis and its toll in human lives and are able to compare the results of the older and newer forms of management feel assured that the gain has been greater than the loss. What is needed is to train the new generation of tuberculosis specialists so that in seeking dramatic results they will not lose sight of fundamental and established principles. The operator should have a thorough grasp of the disease and of the physiologic processes of pneumothorax; otherwise there are potentialities for harm in the present enthusiasm.

What are the more important considerations that have contributed to this change in the treatment and management of pulmonary tuberculosis? They are apparent when one considers critically the obstacles that have to be overcome to obtain a lasting cure in tuberculosis of the lungs.

THE CONTROL OF THE TUBERCULOUS TOXEMIA

The most urgent problem in arresting clinical tuberculosis is control of the toxemia that always accompanies to a greater or less degree the active phases of the disease. It is apparent when one considers the physiopathologic aspects of pulmonary tuberculosis that there can be no beginning of cure until the toxemia is checked. The familiar symptoms of tuberculosis, such as fever, night sweats, loss of appetite, malaise and rapid pulse, are the constitutional manifestations of the toxemia caused by the pathologic process in the lung tissue. It is the resulting toxemia that makes the patient feel ill.

Whether the toxemia is acute or chronic, it always disturbs health and in turn favors a spread of the tuberculosis in the lungs. This spread results in more toxemia, and a vicious cycle is established. If the toxemia is of low grade, the end may be delayed for years. The patient may even enjoy relatively good

From the Henry Phipps Institute, University of Pennsylvania School of Medicine.

health and be a useful and productive citizen with long periods of remission. These are the so-called "good chronics." On the other hand, the toxemia may be acute and apparently out of all proportion to the extent of the disease in the lungs, and the patient may die in a few weeks.

To effect a cure one must first of all break through the vicious cycle and reverse the trend. With the toxemia eliminated or checked the fever disappears, the appetite improves and there is gain in weight and strength. This in turn gives an opportunity for the natural healing forces of the human body to come into play and resolution and scarring of the pulmonary lesion usually follows in due course, until the patient becomes anatomically cured.

Unfortunately there is no specific in the treatment of pulmonary tuberculosis to control the toxemia, no drug, similar to quinine in malaria, no antitoxin, as in diphtheria; indirect methods must be depended on.

In the past, reliance has been placed on bed rest and, less soundly, on climate and altitude, on fresh air and tonics, on milk and eggs. If one analyzes the reports from institutions in various parts of the country, some noted for their beneficial climate, others not, the results are essentially the same, and except for incipient cases they are disappointing. There was little that could be accomplished for the larger number of patients, and many institutions until recently denied admission to all but "early" cases. A diagnosis of far advanced tuberculosis often meant death or a life of invalidism.

It slowly became apparent that the reason for failure in many cases was that even rest in bed was not sufficient rest for a tuberculous lung. The natural process of breathing was too much exertion, and although absorption of toxic products into the circulation might be diminished, it was not eliminated and the patient would continue to get worse and finally die. What was needed was intensive local rest for an indefinite time. This can be accomplished only by collapse therapy. When pneumothorax treatment is instituted, the diseased area of the lung is collapsed and squeezed together like a sponge. The source of the toxemia is shut off and further absorption of toxic products eliminated. For this reason the immediate results of artificial pneumothorax are often dramatic. The fever drops, the night sweats disappear, the appetite returns, the patient gains in weight and strength, and almost over night the clinical picture is changed from one of despair to one of cheerfulness and hope. This is due to no other factor than the elimination of the toxemia. The lung itself is still diseased. The cavity and infiltration are still there as they were before collapse was instituted. If reexpansion is permitted all clinical symptoms of active tuberculosis return.

The first principle, therefore, in the treatment of clinical tuberculosis is the immediate control of the toxemia at its source. The most rapidly effective way to accomplish this is to collapse the lung if possible by establishing an artificial pneumothorax. When the collapse is efficient it accomplishes more in a few weeks than could be brought about in months or even years by older methods. Pneumothorax materially improves the immediate prognosis of pulmonary tuberculosis.

The following summarized case report illustrates the dramatic effect of pneumothorax on the tuberculous toxemia:

CASE 1.—S. S., a white man, aged 23, came under observation Dec. 19, 1929, with advanced tuberculosis involving the right upper lobe and complicated by hemoptysis. He had been acutely ill for two weeks previously. His evening temperature ranged between 102 and 103 F. and he was coughing up large mouthfuls of blood at frequent intervals. At times there was a fresh hemoptysis of several ounces. Under rest in bed and medication his condition did not improve and the outlook appeared grave. Pneumothorax was instituted December 21 and a partial collapse of the right lung obtained. The bleeding stopped almost at once and after the second inflation three days later disappeared entirely. The fever began to disappear and by the end of the nineteenth day the temperature had returned practically to normal. The clinical appearance of the patient was strikingly improved, and at the end of six weeks he was permitted out of bed. His recovery has been uneventful. It has been nearly six years since he first became ill. He has been working and self supporting for the past five years without the loss of a single day because of his tuberculosis. The lung is practically healed and it would probably be safe to permit reexpansion, but the patient feels safer with the lung collapsed and has asked that the treatment be continued. The dramatic response of his tuberculosis to pneumothorax is indicated in figure 1.

IMPORTANCE OF TIME IN THE CURE OF TUBERCULOSIS

The second consideration in the treatment of tuberculosis is the factor of time. Cure is usually a matter of years. Even minimal tuberculosis requires a year or more for a lasting cure. The great mistake made in the past in treating tuberculosis was the assumption

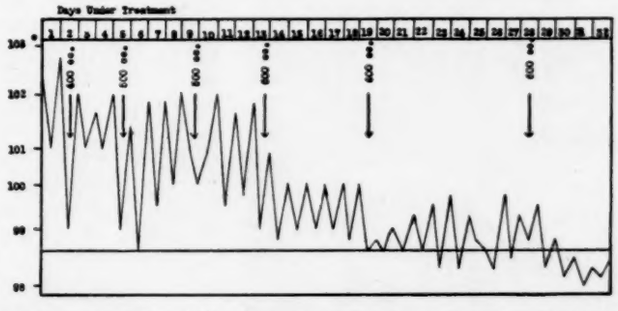

Fig. 1 (case 1).—Daily temperature curve in a case of acute tuberculosis treated by artificial pneumothorax (refills indicated by arrows).

that clinical well being was synonymous with cure. It has been shown that the patient may feel well, gain in weight and have a normal temperature while the disease in the lungs progresses. This is a common experience, with the record clearly written in serial x-ray studies. For this reason relapses have been common following apparent cure of the disease after a prolonged sojourn in a sanatorium, and many sanatoriums, regarding tuberculosis as a relapsing disease with a gloomy prognosis, have restricted admission to early cases.

The difficulty has been that the principle of rest for the diseased lung has not been applied long enough and in some cases could not be applied intensively enough, however faithfully the patient might "take the cure." Most physicians have centered their attention on the outward manifestations of clinical tuberculosis and have overlooked the evidence showing that anatomic improvement lags far behind clinical improvement. Moreover, many tuberculosis patients could not or would not remain in sanatoriums or stay in bed for the time required to obtain a lasting cure, particularly after they began to feel well.

Collapse therapy attacks this evil at its source. When therapeutic pneumothorax is instituted the lung is splinted and kept at rest for as long a period as the physician may desire, two years, five years or for the rest of the patient's life if need be. With the toxemia

controlled and the patient feeling well and able to work, all that is needed to keep him in good health is to maintain the pneumothorax sufficiently long to permit complete healing of the tuberculous lung. Serial x-ray studies are evidence of the remarkable healing power of nature; large cavities and massive infiltrations may in time disappear and leave little trace.

Regardless of how impressive the immediate results of pneumothorax may be, the physician must remember that a lasting cure always takes time. Experience has shown that in the majority of cases from three to five years is necessary, and in some instances longer. There can be no fixed rule as to how long pneumothorax should be maintained. If a general rule may be ventured, it would be to continue pneumothorax for at least a year after the x-ray evidence indicates complete healing. In the majority of cases this means from three to five years, depending on the extent and severity of the disease at the time treatment was instituted. Early cases naturally require less time, perhaps two years. No patient should be started on pneumothorax therapy with the idea that within six months or a year he will be cured and that the treatment can be safely stopped at the end of that time. Figures 2 and 3 show recurrence of advanced disease after pneumothorax treatment of three years' duration was discontinued shortly after x-ray evidence of apparent cure.

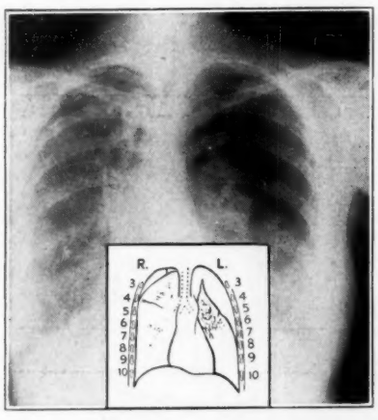

Fig. 2.—Chest of a white woman, aged 22, June 17, 1932. Bilateral pneumothorax shortly before the pneumothorax on the right was discontinued after three years of uninterrupted successful collapse. Except for a few fibrous strands in the right upper lobe, the lung was apparently free from disease. The sputum was persistently negative for tubercle bacilli and the patient was clinically well.

The lengthy period of treatment is no particular hardship. It is not even an important inconvenience and all in all is a very small price to pay for good health. Once the toxemia is eliminated, usually in the first few months, the patient can work and live a normal, useful life within reasonable limits. Women may bear children and young people may continue with their studies. There is no reason why in the light of modern experience a tuberculous patient, properly treated, need have his life's ambition thwarted and be forced to live the life of semi-invalidism. The following case illustrates the possibilities of modern collapse therapy:

CASE 2.—S. T., a white woman, aged 27, seen in consultation April 19, 1932, had far advanced bilateral tuberculosis with cavity formation and positive sputum (fig. 4). She had not been well for ten months previously, following the birth of a daughter in 1931, and complained of a hacking cough, unexplained weakness and loss of weight, and some expectoration. Six weeks after delivery she had a small hemorrhage of about 2 ounces (60 cc.). During April she had frequent night sweats. Her evening temperature averaged close to 100 F. Pneumothorax therapy was instituted at home on the right side on April 26, one week after the diagnosis was made, and a satisfactory collapse was established. June 22, phrenic evulsion was performed on the left side. October 18 the patient had a tonsillectomy under local anesthesia for frequent sore throats. Her health has steadily improved. Her sputum became persistently negative for tubercle bacilli and by December 1932 she assumed full household responsibilities. In 1933 she became pregnant (fig. 5) and on Jan. 19, 1934, she gave birth to a healthy baby girl without any deleterious effect to her health. She is still receiving pneumothorax treatment (December 1935) for the right lung, and the left diaphragm is still elevated (fig. 6). Her lungs, while still diseased, have improved considerably and she is as active as any normal woman.

The unique ability of the induced pneumothorax to keep a diseased lung at rest indefinitely accounts for the larger percentage of cures among such patients as compared with those treated without pneumothorax. Rist has pointed out that the difference may be as great as 52 per cent as compared to 8.5 per cent. In other words, by his calculation a patient with moderately advanced tuberculosis treated with pneumothorax has a chance for ultimate recovery six times as great as the patient treated without pneumothorax.

THE ECONOMIC AND SOCIAL PROBLEMS IN TUBERCULOSIS

Another important consideration in the treatment of tuberculosis is the proper management of the underlying social and economic problems that are so intimately associated with this disease.

The great majority of patients are persons who depend for their bread on their daily earnings. If it is made impossible for such an individual to keep his job, or if too heavy a financial burden is put on him when he attempts to provide medical care for a member of his family, it is difficult or impossible for him to solve his particular economic problem. Many, given no alternative, after a heroic effort, which quickly dissipates their meager resources, are sooner or later forced to accept charity and free medical care. Social service studies have repeatedly shown that, of all diseases responsible for patients seeking relief in normal times, tuberculosis occupies first place. This has been a necessary corollary when treatment necessitated migration to a sanatorium located at a distance and a sojourn there for months and years. Only a relatively small number can afford such luxury, and, even among these, financial sacrifices have been common. Pneumothorax therapy has in many instances eliminated the necessity for sanatorium care and other expensive hospitalization. It can be safely instituted at home or in a local hospital. The majority of patients are more comfortable at home, where they usually have better quarters and better food. If the collapse is effective they gain in weight and strength rapidly in their accustomed surroundings and within a short time are able to take up their daily work again without prejudice to their health.

These facts are so well established today that more and more tuberculosis specialists, particularly in the larger cities, treat their patients at home with collapse therapy instead of sending them away. This change in management incidentally helps to reduce the cost of medical care and to maintain the private relationship between patient and physician. It has made it possible for a considerable number of patients who otherwise would be forced to seek free medical care in the clinic or state institution to receive skilled private medical care in their homes.

If the toxemia is not severe and the disease not too far advanced, if it is confined to one lung, and if a satisfactory collapse can be established — conditions found in about 50 per cent of the tuberculous — the patient may return to work in from one to three months after pneumothorax treatment has been insti-

tuted. More is accomplished within this short time and at a relatively insignificant cost than would have been thought possible under any other form of treatment heretofore.

The following is an example of the economic value of artificial pneumothorax in a young adult with advanced, active tuberculosis of one lung:

CASE 3.—E. F., a white woman, aged 25, was diagnosed at the Henry Phipps Institute, April 20, 1930, as suffering from an acute tuberculous consolidation of the right upper lobe. The temperature was 102 F. and the pulse 100. Râles were easily detected in the consolidated area and the blood sedimentation rate was rapid, with an index of 24 mm. The sputum was positive for tubercle bacilli. The patient refused hospitalization and sanatorium care. Artificial pneumothorax was started at home on May 2 and a good collapse was obtained. Three weeks later, against advice, she resumed her position as a clerk in a department store, free from all symptoms and apparently enjoying good health. Her sputum became free from tubercle bacilli. Five years has now elapsed. The patient has not lost a day from work because of illness. She looks well, is free from all symptoms, and the consolidated area has entirely cleared up. A recent roentgen study disclosed an apparently healthy lung with a number of fibrous strands in the previously diseased area.

This has been accomplished under artificial pneumothorax with the patient at work and self supporting. The only inconvenience to the patient was the refills. Artificial pneumothorax is the only treatment that can meet the urgent financial needs of such patients, enabling them to work without prejudice to their own physical welfare and without exposing either their families or their fellow workers to contagion.

Even in the poor the disease can be managed efficiently in their home environment by means of collapse therapy. The ambulatory pneumothorax clinic at the Henry Phipps Institute, organized in 1931 in the heart of the slum district of Philadelphia, where poverty and bad hygienic conditions are common, treats about fifty patients a morning with results that compare favorably with similar groups of patients treated in well regulated sanatoriums. The field pneumothorax clinic of the Chicago Municipal Tuberculosis Sanitarium and similar clinics in other metropolitan centers report similar results. The economic and health value of such a plan to the community is obvious.

Sometimes there are other factors, in addition to the economic, that contribute to the hardships and tragedies of tuberculosis. Case 4 illustrates this point:

CASE 4.—A dentist was stricken with active tuberculosis of the lungs and positive sputum just as he was becoming established in his profession. Without ambulatory pneumothorax, residence in a sanatorium for at least six months or a year would have been necessary, with probable loss of his practice and of his many valuable contacts, established after hard work and patient effort.

He was seen in consultation on June 12, 1933. At that time he had advanced tuberculosis of the right upper lobe with a cavity 3 by 4 cm., cough and positive sputum, and an evening temperature of 99.4 F. He was greatly disturbed about his social problems; above all else he did not want to close his office and go away. In spite of the advanced character of his disease it was confined to one lung, and his general condition was good. He was well nourished and toxemia was not pronounced. It was an easy matter for him to announce that he was going away for a two weeks vacation. During this time he remained at home and pneumothorax was instituted. Fortunately the collapse was satisfactory; the cavity closed almost immediately, the sputum became negative, and the fever disappeared. At the end of two weeks he was in his office again practicing dentistry. He was instructed to rearrange his hours and to restrict his work within certain easy limits. Every spare moment he rested on a couch in his office. Little by little his working hours were increased. In the two and a half years since he was first placed under treatment, pneumothorax has been maintained and at present he receives a refill every three weeks. His lung is practically healed, and there is no trace of the cavity. His life is normal in every respect. What other form of treatment could have accomplished as much in so short a time?

THERAPEUTIC PNEUMOTHORAX AS A PUBLIC HEALTH MEASURE

The public health aspect of tuberculosis must never be overlooked. Pulmonary tuberculosis is a contagious disease and spreads from individual to individual through continued intimate contact. In a sense, the physician who undertakes the treatment of a tuberculous patient becomes the public health officer responsible for the welfare of the entire family and indirectly of the community. The physician must therefore always be on the lookout for sputum containing tubercle bacilli, and his treatment and management of the case must take into account this vital factor. Education of the patient and his family in the proper disposal of the sputum is, of course, a help, but a more effective method is to render positive sputum negative.

When the diseased lung is satisfactorily collapsed, tubercle bacilli almost invariably disappear from the sputum. This occurs so regularly after an effective collapse has been established that, if the sputum remains positive, it is evidence that the diseased area is not as effectively collapsed as was believed or that there is active disease in the contralateral lung. As soon as the sputum is freed from tubercle bacilli by collapse the danger to others in treating tuberculosis at home is eliminated.

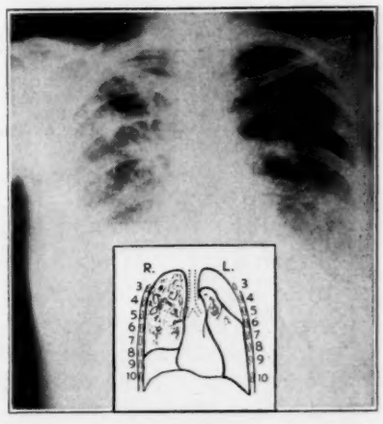

Fig. 3.—Aug. 2, 1934, twenty-six months after the pneumothorax on the right was discontinued. There was recurrence of widespread tuberculosis in the right lung with several small cavities in the upper lobe. A phrenic crushing and scaleniotomy was performed but has failed to close the cavities. The sputum is positive for tubercle bacilli and the patient is confined to bed for the most part (December 1935). During this period the disease in the left lung has steadily improved under pneumothorax treatment to the point of almost complete clearing.

If by such a relatively simple procedure as pneumothorax a goodly number of tuberculous patients can be rendered harmless to those about them through the disappearance of tubercle bacilli from the sputum, there is in this procedure one of the most powerful weapons in the control of tuberculosis. Artificial pneumothorax must therefore be regarded as a public health measure of the first magnitude.

IMPROVEMENT IN PNEUMOTHORAX TECHNIC

Another factor that has contributed to the popularity of pneumothorax is a better understanding of its method of operation. There has been considerable improvement in technic, and the routine use of the fluoroscope and roentgenograph has placed the treatment on a sound scientific basis. When Forlanini practiced pneumothorax therapy it was believed that the entire lung, both the diseased and the healthy area,

had to be collapsed, and the lung was shrunken to a sausage shaped mass lying close to the heart. Under such conditions treatment was necessarily confined to strictly unilateral cases. But it has long since been established that all that is necessary is collapse of the diseased part, while the healthy tissue is permitted to function. This is the principle of selective collapse. With this type of therapy, little or no strain is placed on the contralateral lung, and very often, in fact, when disease is present in the "good side," this also improves with the improvement of the treated lung. Furthermore, selective collapse makes possible bilateral pneumothorax or the simultaneous collapse of parts of the two lungs. This improvement in technic has materially increased the usefulness of artificial pneumothorax and widened its indications, so that it can be applied to an increasing number of patients. There are many institutions today in which pneumothorax is applied to 75 per cent or more of the tuberculous patients, in marked contrast to the usual 5 to 10 per cent of a decade ago.

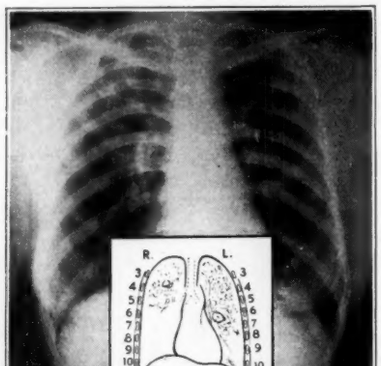

Fig. 4 (case 2).—April 19, 1932: Far advanced bilateral, active tuberculosis with a cavity in the right upper and one near the left hilus. Duration of symptoms, ten months following childbirth.

INDICATIONS AND CONTRAINDICATIONS FOR PNEUMOTHORAX TREATMENT

It follows that the trend today is to institute pneumothorax or some other form of collapse therapy whenever possible and to do it as soon after the diagnosis is established as is practicable. In the average case there is nothing to be gained by waiting a few months to see how the patient will respond to bed rest alone. The exceptions to this rule are taken up in later paragraphs under contraindications.

Such complicating conditions as diabetes or pregnancy call for immediate application of pneumothorax therapy. The same is true for tuberculosis of the larynx, which at times will improve with surprising rapidity with collapse of the diseased lung. In fact, the many conditions that formerly were regarded as contraindications are today added indications.

Latent or Asymptomatic Tuberculosis.—Is pneumothorax indicated in latent tuberculosis? Opie and McPhedran have defined latent tuberculosis as tuberculosis of the lungs without physical signs or symptoms but clearly demonstrable in the x-ray film. This definition does not indicate that the disease is necessarily harmless. Not infrequently the tuberculosis is active and advanced, as shown by serial x-ray films and also in blood sedimentation studies, and if allowed to go unchecked will in time result in clinically manifest tuberculosis with positive sputum and cavity formation. On the other hand there are a considerable number of patients with latent tuberculosis in whom the disease will never become of clinical importance.

Obviously, common sense should be the guiding rule as to whether pneumothorax is to be instituted in latent tuberculosis. If the disease is inactive it may be a healed tuberculosis, and for all practical purposes, except for periodic examination, no supervision is indicated. The diagnosis is purely an anatomic one. On the other hand, if the disease appears active and advanced the patient should be treated with as much seriousness as if he already had manifest clinical tuberculosis. These patients are potentially curable with relatively little effort, but there is no need for the immediate institution of pneumothorax therapy. The situation can be explained to the patient and his family and the patient ordered to bed for about three months. If he improves, this period of rest can be continued and the patient treated along the established hygienic-dietetic-rest regimen. On the other hand, if the disease shows a tendency to progress or if the patient objects to prolonged bed rest, pneumothorax intervention is definitely indicated. In the Negro race, because of the great tendency of the disease to progress rapidly and with little warning, the latent period—the period before symptoms develop and before tubercle bacilli make their appearance in the sputum—is the most favorable time for pneumothorax intervention.

Closed Tuberculosis.—What has been said for latent tuberculosis applies equally well for clinically closed tuberculosis, with the clinical signs and symptoms of tuberculosis but no tubercle bacilli in the sputum. If the disease is not advanced, bed rest alone should be tried first. But if after a trial of some three months the roentgenogram, regardless of apparent clinical improvement, shows a tendency for the disease to progress, pneumothorax treatment may be instituted without further delay. If the sputum should at any time become positive or if the disease is advanced when the diagnosis is first made, pneumothorax should be instituted at once for public health reasons.

Far Advanced Tuberculosis.—It has already been emphasized that pneumothorax is not a specific. It produces its results by resting the lung, eliminating the toxemia, perhaps by shutting off the oxygen supply to the tubercle bacilli and by favoring fibrosis. It helps to set in motion the natural forces of the body for recovery. If, however, the patient has not enough resistance to tuberculosis, or if too much lung has been destroyed, recovery cannot be expected. There must come a time, therefore, when the application of pneumothorax is a wasted effort. Just when this is true may be difficult to decide in individual instances. If the disease is advanced in the two lungs to the extent that 50 per cent or more of the total lung tissue on both sides is destroyed, pneumothorax will produce little or no result and may be said to be contraindicated. If pneumothorax is applied to some of these patients it may even shorten life by interfering with the fine

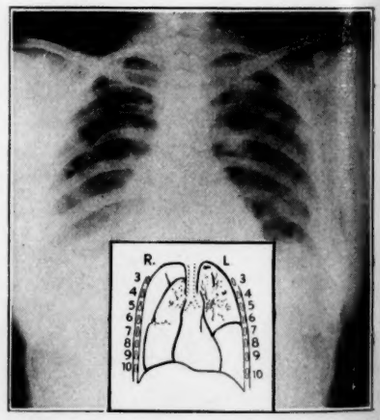

Fig. 5 (case 2).—Dec. 12, 1933, twenty months later: Pneumothorax on the right side and phrenic evulsion on the left. There has been marked clearing in both lungs with the cavities no longer visible. Sputum persistently negative for tubercle bacilli. Patient pregnant and near term. Note the very high position of the left diaphragm and the distended colon below. No noticeable dyspnea.

balance that the patient has somehow managed to build up, enabling him to enjoy a certain degree of well being.

Pneumothorax should not be instituted in obviously dying patients with hectic fever and cyanosis, in whom the disease is widely scattered in both lungs. Likewise pneumothorax should not be instituted in those who have some other disease which in itself will kill the patient or keep him a confined invalid, such as cancer or progressive deforming arthritis.

Hypertension and Heart Disease.—Patients with definite hypertension—180 mm. or more—do not as a rule do well under pneumothorax therapy. They do not tolerate interference with the intrapleural pressure, and marked shortness of breath with a broken cardiac compensation may result. These patients are best treated by the usual dietetic-hygienic-rest regimen. The same holds true of patients who give a history of cardiac decompensation.

On the other hand, the presence of an organic valvular lesion with good compensation is not a contraindication. Excellent results can be obtained in the presence of definite mitral stenosis and regurgitation.

Age.—This is at times considered a contraindication. However, pneumothorax has been given to infants 5 months old and to adults in their late sixties and older. As a general rule, however, patients beyond 50 are easily upset when the intrapleural pressure is changed by pneumothorax therapy. They become noticeably short of breath even when small quantities of air are introduced. This shortness of breath is presumably due to the arteriosclerotic changes in the larger vessels and to a weakened cardiac musculature, which cannot accommodate themselves readily to the increased intrapleural pressure. If, however, the disease is progressive and the prospects for a cure are good, one should not hesitate to employ pneumothorax therapy and adjust the technic accordingly.

Asthma.—This is often considered a contraindication. If the prospects for a cure are good, however, the asthmatic patient who has pulmonary tuberculosis should have pneumothorax treatment. Such patients often do well in spite of repeated attacks of asthma. In rare instances the asthma is due to allergy caused by the tuberculosis, and the patient may be cured of his asthma at the same time that the tuberculosis is cured.

Extensive Adhesions.—Pneumothorax should not be forced in those cases in which no free pleural space exists, nor should it be continued when it becomes evident that a cavity cannot be closed because of extensive, inoperable adhesions. If one persists in pneumothorax therapy under such circumstances, air embolism and sudden death may result or tuberculous empyema and other serious complications may set in. These patients are not suitable for pneumothorax but may be helped by phrenicectomy or thoracoplasty. The important thing is for the operator not to lose valuable time with an ineffectual pneumothorax.

COMPLICATIONS

In a discussion of pneumothorax therapy it is important to indicate its dangers and complications. Like any other form of treatment, pneumothorax has its dangers. These should always be kept in mind, but they can be exaggerated. One should always balance the possible complications of pneumothorax therapy against the alternative of not instituting collapse treatment, for passive treatment has its complications also. It is also important to keep in mind that the earlier in the course of the disease pneumothorax is instituted the less will be the likelihood of serious complications.

Air Embolism.—The most important single complication is air embolism. It is the cause of practically all sudden deaths following pneumothorax treatment. It occurs in some degree about once in 1,500 pneumothorax treatments and in less than 0.5 per cent of all treated cases. It is not fatal, however, in this number, as in the majority of instances the patient recovers. When it does occur it is almost invariably due to faulty technic, of which the operator may not have been aware at the time. A careful analysis of such cases will usually convince one that there has been an attempt to inflate the pleural cavity when there were definite warnings that the needle was not in the proper place or that no free pleural space was present. The technic of pneumothorax in the average case is so easy that the operator, unless he has seen a sudden death from artificial pneumothorax, may look on the treatment as simplicity itself, devoid of all danger, and in his ignorance take chances in difficult situations. The danger of air embolism is naturally greatest when pneumothorax treatment is first instituted, and there should be an unaltered rule that no one but a thoroughly experienced operator should give the initial treatment. This complication, while always potentially present, can be eliminated almost entirely by close attention to all details of technic, by routine fluoroscopic studies before each refill, and by a keen awareness of possible danger on the part of the operator.

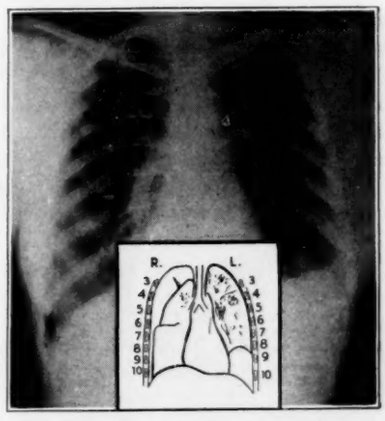

Fig. 6 (case 2).—Nov. 3, 1935, twenty-one months after giving birth to a healthy baby girl. There has been uninterrupted healing in both lungs. The patient is symptomatically well and able to work (December 1935). Note the lower position of the diaphragm following childbirth. The left side is still elevated as a result of the phrenic nerve evulsion.

Pleural Shock.—Dizziness or discomfort after a pneumothorax refill is not uncommon, but serious consequences from pleural shock are extremely rare. When such symptoms occur and end in death they are almost invariably due to air embolism and not to pleural shock.

Pleural Effusions.—Pleural effusions during pneumothorax therapy are very common. They fall into two distinct groups.

(*a*) Pleural Transudates: Pleural transudates occur sooner or later in 90 per cent or more of patients receiving pneumothorax treatment. They seldom rise above the eighth posterior rib and in time disappear. They are of no clinical importance. They require no treatment and should not be considered a complication. In fact the small effusion often acts in a beneficial way by decreasing the permeability of the pleura to air and making it possible to lengthen the intervals between refills. It is the result of the natural reaction of the pleura to the presence of a foreign substance, the introduced air.

(*b*) Tuberculous Pleurisy: Tuberculous pleurisy, acute or chronic, is relatively common in tuberculosis and may occur at any time in the course of the disease, regardless of the type of treatment instituted. Occasionally it appears that an acute pleurisy is precipitated by pneumothorax treatment, but acute pleurisy is not more common during pneumothorax treatment than without it. It occurs in about 5 to 10 per cent of treated cases. About 50 per cent of these acute pleurisies disappear spontaneously or after aspiration and air replacement and do not interfere with the ultimate cure of the patient.

(*c*) Tuberculous Empyema: Approximately 50 per cent of all tuberculous pleurisies persist in spite of repeated aspiration and in time become purulent. Some of these will respond to continued aspiration and disinfectant oleothorax and in time will clear up completely. In others the fluid persists but accumulates very slowly and does not interfere with the general health of the patient. If the lung is effectively collapsed, the sputum negative and the patient doing well clinically, the pneumothorax should be continued until a cure has resulted. The small empyema will disappear when the lung is ultimately reexpanded. On the other hand, if the collapse is ineffective and there is still an open cavity, thoracoplasty is the best solution. In all events tuberculous empyema properly treated is not the serious complication that it was once believed to be. Furthermore, it occurs chiefly in far advanced cases with large cavities and can be avoided by instituting pneumothorax earlier in the course of the disease.

Spontaneous Pneumothorax.—This may be due to the induced pneumothorax, as when an adhesion gives way at its visceral attachment, especially when the cavity is situated superficially, or it may occur in the natural sequence of events, because of the progressive character of the tuberculosis in spite of treatment. At least 5 per cent of all tuberculous deaths in patients who never had pneumothorax treatment are from spontaneous pneumothorax. This incidence does not appear to be greater under pneumothorax treatment, and, when it does take place, the chances are that it would have occurred with or without collapse therapy in the course of progressive disease. The practice of forcibly stretching adhesions to close cavities accounts for some spontaneous ruptures and should be abandoned. The possibility of these spontaneous pneumothoraces can be materially reduced by early intrapleural pneumolysis.

Disease in the Contralateral Lung.—Spread of the disease in the opposite lung does occur under pneumothorax treatment, but much less frequently than under passive treatment. In the majority of instances the reverse is true—the opposite lung improves following improvement in the treated lung. If necessary, however, the contralateral lung can be treated by the bilateral induction of pneumothorax or by phrenicectomy. Some of the extensions of the tuberculosis in the other lung are due to faulty technic in establishing a collapse on the badly diseased side and can be prevented.

Other Complications.—The other complications, such as displacement of the mediastinum, subcutaneous emphysema and pneumothorax fever, although inconvenient, are of little importance. They do not interfere with the treatment, nor do they endanger the welfare of the patient.

COMPLICATIONS OF PASSIVE TREATMENT

Treatment without pneumothorax is also not without danger, and against the complications of collapse therapy just described must be placed those of passive treatment. Reference has already been made to spontaneous pneumothorax and tuberculous pleurisy. In addition to these there are pulmonary hemorrhage and metastasis.

Pulmonary Hemorrhage.—Pulmonary hemorrhage is often insignificant, but it is always a potential source of danger and may result in sudden death. Not infrequently there follows an acute spread of the tuberculosis in the lungs, which may cause death or leave the patient a lifelong invalid. Pulmonary hemorrhage does not occur during pneumothorax treatment when the operation has succeeded in closing the cavity and collapsing the diseased area of the lung.

Spread of Tuberculosis in the Lungs.—Once tuberculosis has become manifest clinically, its tendency is to spread and involve more and more lung. This may occur by way of the blood stream, the lymphatics or the bronchi. Bronchogenic spread is common and is due in large part to the associated cough. It is frequently the cause of disease in the contralateral lung. Much of this spread can be prevented by timely pneumothorax intervention.

Metastasis to Other Organs.—Tuberculosis of the lungs may metastasize early in its course to the larynx, intestine or kidneys. It may lead to miliary tuberculosis or to tuberculous meningitis. Every tuberculous patient faces the possibility of a spread of the tuberculosis to these vital organs. Timely effective pneumothorax goes far to assure the patient against these complications.

SUMMARY

During the past decade, pneumothorax therapy has been applied to an ever increasing number of tuberculous patients, so that today many institutions report 75 per cent or more of their tuberculous patients as receiving artificial pneumothorax treatment. This is in striking contrast to the usual 5 to 10 per cent of five to ten years ago.

The marked enthusiasm for collapse therapy is due in large part to its unique ability to solve many of the pressing problems confronting the tuberculous patient. It often does this in a dramatic and at the same time scientific manner.

It is the most effective single means for the immediate control of the tuberculous toxemia that always accompanies to a greater or less degree the active phases of the disease. With the toxemia eliminated, the patient gains in weight and strength and within a relatively short time is able to take up his daily work again without prejudice to his health. In many instances it offers the one solution to the underlying social and economic problems that are so intimately associated with this disease.

Artificial pneumothorax materially improves the ultimate prognosis. The induced pneumothorax can keep a diseased lung at rest indefinitely, and this accounts for the larger percentage of cures among such patients as contrasted with those treated without pneumothorax. It has been calculated that a patient with moderately advanced tuberculosis, treated with pneumothorax, has a chance for ultimate recovery six times as great as the patient treated without pneumothorax.

Artificial pneumothorax is a public health measure of the first magnitude. It is the surest and quickest method for eliminating tubercle bacilli from the sputum, and, with the establishment of field pneumothorax clinics for the mass treatment of tuberculous patients, it has become the solution to the perplexing problem of inadequate hospital facilities and should in time

result in a steady reduction in the mortality and morbidity rates of pulmonary tuberculosis.

Pneumothorax therapy has its dangers and complications, but they can be overemphasized. By and large they are not more serious than the complications of passive treatment, and their frequency and severity can be materially reduced by proper technic and management.

The development of selective and simultaneous bilateral pneumothorax has materially widened the indications for pneumothorax therapy and the contraindications have been correspondingly narrowed to relatively few conditions.

In view of all the considerations that have been discussed bearing on the social, economic and public health problems of pulmonary tuberculosis, and in view of the fact that many more patients will do well and stay well under pneumothorax treatment, it would appear that with all the dangers and inconveniences of pneumothorax therapy it is the most efficient method for treating pulmonary tuberculosis in its various stages.

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GASTROSTOMY FEEDING

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A recent review of gastrostomy diets in a number of hospitals has demonstrated that a knowledge of the general principles of such feeding is often wanting. In the smaller hospitals this is perhaps due to the infrequency with which the problem is met. The surgeon passes to the nurse the task of administering a liquid diet of her own selection. This invariably reduces the diet to one of milk with the occasional substitution of eggnogs prepared even to the vanilla flavoring. Cups of tea or coffee, or beef broths, or malted milk, are often given in unawareness of their low value to a patient in serious need of calories and vitamins. In large hospitals it is customary to feed such patients with a liquid "high caloric mixture" made up of raw eggs, heavy cream, milk and lactose to provide a very unnatural diet in which about 60 per cent of the caloric requirements are satisfied in the form of fats.

My associates and I have prepared a gastrostomy diet from our experience with tube feeding in cases of carcinoma of the mandible, larynx, pharynx or esophagus. After resections of the mandible or larynx, it has often been found desirable to feed the patient by nasal catheter for the first few days after operation until the wound is somewhat healed. In carcinoma of the pharynx, larynx or esophagus, a gastrostomy is often desirable to tide the patient over the period of increased dysphagia at the height of the edema that invariably follows effectual doses of external or interstitial irradiation of tumors in these regions. Relief from the necessity of swallowing food often permits the edematous wall of the diseased esophagus to shrink to a remarkable degree, and the patient may then find it possible to swallow liquid foods again. Patients with carcinoma of the esophagus may be kept properly nourished for a longer period of time on an optimum diet, though all eventually lose weight. Those patients who are dehydrated or poorly nourished before operation usually gain in weight.

In all these conditions the stomach may be considered as an essentially normal organ except for the presence of the gastrostomy tube and the occasional encroachment of a carcinoma of the esophagus on the cardia of the stomach. Digestion in the stomach may be assumed to be normal except in the occasional case with complete obstruction of the esophagus and total loss of saliva. Chevalier Jackson [1] observed that children with esophageal obstruction being fed by a gastrostomy tube failed to gain in weight until dilatation of the esophagus had been sufficient to permit saliva to pass into the stomach or until the lost saliva was returned by tube. This suggests that the saliva is of considerable importance in the proper digestion of food.

The only barrier to the administration of the ordinary "house diet" is the size of the lumen of the tube; therefore the gastrostomy diet should approximate the normal diet so far as is practicable to the satisfaction of the caloric, mineral, vitamin and fluid requirements of the body. The desirability of a diet with simple ingredients of low cost is obvious. The cost of the diet here outlined has been calculated from current food prices to be between 70 and 80 cents a day.

The use of lactose as a source of carbohydrate in formulas for tube feeding appears to be universal, but I am unable to find any basis for its popularity save tradition. It has been extensively used in high carbohydrate diets administered by mouth, as in diets for patients with typhoid, in which its chief merit lies in the fact that it is less sweet than cane sugar while possessing the same caloric value. Palatability, however, need not be considered in tube feeding. Hosoi, Alvarez and Mann [2] state that "the high percentage of dry residue obtained after giving lactose is of interest because this substance is supposed to be almost unabsorbable by the mucous membrane of the bowel. For this reason it may increase the fluidity of the intestinal contents in much the same way as does magnesium sulfate." The tendency of lactose to produce diarrhea and flatulence is well known clinically. Koehler and Allen [3] in a recent experimental study of the nutritive value of lactose found that from 40 to 50 per cent was lost so far as weight or energy relationships were concerned in the rat. The cost of lactose is appreciable and at present retails at from 50 to 75 cents a pound.

Corn syrup is a very satisfactory and inexpensive form in which the carbohydrate supplement may be obtained and has been used extensively in infant feeding. Several of the simpler sugars are found in this syrup, perhaps a desirable feature in the cases in which there is an absence of salivary digestion.

A very thin cereal gruel of smooth texture is necessary to prevent plugging the tube. Some of the prepared long-cooked cereals marketed for inafnt feeding fill these requirements, and oatmeal is satisfactory if cooked for an hour or more and then strained through a fine strainer. The resulting mucoid cereal mixes well into the feeding mixture and does not settle out even after standing for twenty-four hours.

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1. Jackson, Chevalier: Saliva in Nutritive Processes, Arch. Pediat. **40**: 324 (May) 1923.
2. Hosoi, K.; Alvarez, W. C., and Mann, F. C.: Intestinal Absorption, Arch. Int. Med. **41**: 112 (Jan.) 1928.
3. Koehler, A. E., and Allen, S. E.: The Nutritive Value of Lactose, J. Nutrition **8**: 377 (Oct.) 1934.

Cracker meal has been tried as a supplementary food, since it has a high caloric value and requires no cooking, but it has an undesirable tendency to form a lumpy mass which settles to the bottom of the mixture. Other meals and cereals, even though finely divided, tend to be granular and also settle to the bottom of the liquid mixture.

Whole milk is a satisfactory liquid vehicle for the diet. Peptonized milk has been recommended for use in gastrostomy tube feeding, but it would seem to be unnecessary to peptonize the milk before administration. Malted milk is too expensive in proportion to its food value.

A large number of raw eggs have been added to the gastrostomy diet in some hospitals, but the experiments of Hosoi, Alvarez and Mann [2] showed that raw egg albumin produced a dry residue of 85.9 per cent in dogs and ran out of the rectum quite unchanged. Cooked eggs are recognized to be more completely digestible than raw eggs and do not produce diarrhea. We have therefore recommended the use of soft poached eggs. Soft boiled eggs would be equally satisfactory but there is a greater chance that they will be cooked too hard. Poached eggs may be pushed through a strainer and, with the addition of a small amount of milk, make a creamy mass that may be added to the diet mixture.

Butter has been used as the supplementary source of fat in lieu of cream; this has previously been suggested by Watson.[4] Fat is cheaper in the form of butter and a quantity may be kept more easily over a number of days. Melted butter emulsifies well in the large quantity of liquid and does not have a much greater tendency to rise to the top than does cream.

Vegetable purées provide a small amount of roughage in the diet, and the desirable elements which greens possess are supplied if spinach is used. The task of preparation of the purées may be obviated by the use of small cans of vegetables marketed for infant feeding. These can be purchased quite as cheaply as small quantities of strained vegetables can be prepared in the home.

We have recommended that beef scrapings, best obtained from "top round" of beef, be given as an additional source of animal protein. Evidence for the benefits of liver in secondary anemia is not sufficiently convincing to recommend its use for these patients; and its preparation, in small amounts of such consistency that it can be given by tube, will be found to be very trying.

Preparation of the whole day's feeding at a time as a formula mixture, instead of preparing multiple individual feedings, has been transplanted from the current practice in infant feeding. It has seemed desirable, however, to retain one special feeding during the day for the administration of the iron, scraped beef, fruit juice and halibut liver oil. The fruit or tomato juice is a convenient vehicle for the special feeding, and the acidity of the fruit juices has a tendency to curdle the milk if placed in the formula mixture. The halibut liver oil is added to this special feeding to avoid the danger of loss of its small volume. It has been thought safer from a bacteriologic standpoint to give the scraped beef directly in the special feeding rather than to include it in the diet mixture to stand for periods up to twelve or more hours.

TABLE 1.—*Postoperative Diet*

Days	Hours of Feeding	Interval Between Feedings	Number of Feedings	Formula at Each Feeding	Total Formula	Water at Each Feeding	Formula Mixture			Total Daily Fluids	Total Calories
							Milk	Corn Syrup	Supplement		
Day of operation.....	None	.....	None	.....	.....	.....	.....	.....	2,000 cc. 10% dextrose intravenously	67 oz.	820
1st day after operation	7 a. m. to 10 p. m.	1 hr.	16	1 oz.	16 oz.	½ oz.	14 oz.	2 oz.	1,500 cc. 10% dextrose intravenously	66 oz.	1,165
2d day after operation	7 a. m. to 10 p. m.	1 hr.	16	2 oz.	32 oz.	1 oz.	26 oz.	6 oz.	750 cc. 10% dextrose intravenously	73 oz.	1,630
3d day after operation	7 a. m. to 10 p. m.	1 hr.	16	3 oz.	48 oz.	1 oz.	40 oz.	8 oz.	.....	64 oz.	1,875
4th day after operation	7 a. m. to 10 p. m.	1½ hr.	11	4 oz.	44 oz.	1 oz.	31 oz.	8 oz.	2 eggs, 1 oz. butter	55 oz.	2,045
5th day after operation	7 a. m. to 10 p. m.	1½ hr.	11	5 oz.	55 oz.	1 oz.	37 oz.	8 oz.	4 eggs, 2 oz. butter	66 oz.	2,530
6th day after operation	7 a. m. to 9 p. m.	2 hr.	8	6 oz.	48 oz.	1 oz.	30 oz.	8 oz.	4 eggs, 2 oz. butter	56 oz.	2,385
7th day after operation	7 a. m. to 9 p. m.	2 hr.	8	7 oz.	56 oz.	1 oz.	38 oz.	8 oz.	4 eggs, 2 oz. butter	64 oz.	2,550
8th day after operation	8 a. m. to 8 p. m.	2 hr.	7	10 oz.	60 oz.	1 oz.	32 oz.	8 oz.	Full diet (see table 2)	77 oz.	3,020

Accessory factors have been adequately provided in the diet. Supplementary vitamins are given in the form of halibut liver oil, brewers' yeast and orange, grapefruit or tomato juice. The use of halibut liver oil has seemed to eliminate the objectionable regurgitation complained of by some patients when cod liver oil is used. Supplementary iron is given to delay the secondary anemia that inevitably occurs in the patients with advanced carcinoma. This has been given in the form of a 50 per cent solution of ferric ammonium citrate, but ferrous sulfate crystals may be used as an alternative. From table 2 it may be seen that the established daily requirements for calcium, 0.68 Gm., for phosphorus, 1.32 Gm., and for iron, 0.015 Gm., have all been generously satisfied. Copper, cobalt and manganese, and the essential amino acids, as well as vitamin E and iodine may safely be omitted from particular consideration in this diet.

None of our patients have developed a diarrhea on this diet nor have any complained of flatulence, in contrast with our previous experience with the "high caloric mixture." A patient has occasionally developed a mild degree of constipation and been relieved by the addition of a small amount of prune juice to one of the feedings each day. Laxatives or liquid petrolatum may be added to the feedings when indicated.

4. Watson, W. L.: Routine Management of the Gastrostomy Patient, New York State J. Med. **33**: 1261 (Nov. 1) 1933.

PREOPERATIVE AND POSTOPERATIVE CARE

In the preoperative preparation for gastrostomy, patients who are dehydrated and malnourished from inability to swallow are given 10 per cent dextrose in physiologic solution of sodium chloride by the slow drip method for a few hours. No more than a small dose of morphine sulfate is necessary as preoperative medication.

In our clinic the Witzel type of gastrostomy with a size No. 22 soft catheter is invariably done under local anesthesia, and the tube is allowed to remain in place except for periodic removal for cleaning or replacement. This provides a tube large enough to admit a rather viscous feeding mixture when reasonable care has been taken in straining the ingredients during preparation. The feeding mixture here described, however, is of sufficiently smooth texture so that it can be used for feeding through a nasal catheter of small caliber.

We have prepared an outline for the simple preparation of feedings for the patient during the immediate postoperative days preceding the adoption of the full diet. The amounts used are very conservative, and many patients may be advanced to the full diet more rapidly than here outlined. Memory of the diet by the nursing staff is facilitated by the parallelism of days and the amounts of the feedings; i. e., 3 ounces on the third postoperative day, 5 ounces on the fifth postoperative day, and so on.

We have recommended nothing by tube for twenty-four hours to permit the sinus tract to be walled off by fibrin. Supplementary parenteral fluids are required during the first three days to maintain an adequate fluid intake. We prefer to give these as a slow intravenous drip of 10 per cent dextrose solution, but hypodermoclyses may be substituted, or physiologic solution of sodium chloride, or tap water may be given by rectum. We have found, however, that many of the elderly patients operated on do not retain fluids administered by rectum. Experimental evidence suggests that no reliance should be placed on the rectal route for the absorption of any appreciable amount of dextrose.[5]

After operation we have delayed the use of cereal and vegetables until the full diet is adopted in order to obviate the labor of preparing small amounts of these ingredients, as well as to eliminate the possibility of plugging the tube with improperly prepared material during the early period when replacement of the tube would be somewhat hazardous.

On the first day after operation the patient is already receiving about 1,166 calories, and the caloric value then advances rapidly each day to make up the temporary deficit. The quantity of the feedings is gradually increased if the patient experiences no distress, and the number of the feedings is decreased. By the eighth day the full diet mixture can be used. In some patients requiring a greater food or fluid intake, the amount or the number of the feedings may be further increased, or additional water may be used with the feedings. On the other hand, by proportionately decreasing the number or the quantity of the tube feedings, the diet can easily be modified for the patient who is able to take small amounts of nourishment by mouth. When the caloric requirements are satisfied by tube, the patient may relish thin, clear, beef broths by mouth which, though very tasty, provide only 1 calory per gram of the dried beef cube.

We have been able to maintain an adequate intake without disturbing the patient during the night, and have not found it necessary to exceed a volume of 11 ounces for the individual feedings; i. e., 10 ounces of the feeding mixture followed by 1 ounce of water. This gives a total fluid intake of 77 ounces a day. Many patients find that there is a leakage about the tube with larger feedings or that there is abdominal distress even though the diet mixture is administered slowly.

The presence of the tumor mass in the esophagus tends to excite the esophagosalivary reflex by which a

TABLE 2.—*Analysis of Gastrostomy Diet*

Ingredient	Quantity		Foodstuff: Carbohydrate, Gm.	Foodstuff: Protein, Gm.	Foodstuff: Fat, Gm.	Minerals: Calcium, Gm.	Minerals: Phosphorus, Gm.	Minerals: Iron, Gm.	Calories	Vitamins: A	Vitamins: B	Vitamins: C	Vitamins: D	Vitamins: G
Milk	28 fl. oz.	840 Gm.	42	28	34	1.01	0.78	0.002	585	+++ to ++++	++ to ++++	+ to ++	+ to +++	+++ to ++++
Corn syrup (dark)	10 fl. oz.	440 Gm.	324	1	0	....	....	.....	1,300	0 to +	0 to +	0 to +	0 to +	0 to +
Oatmeal	2 tbsp.	15 Gm.	10	2	1	0.01	0.03	0.001	55	++	++++	0 to +	0 to +	++
Eggs	5	250 Gm.	0	34	27	0.17	0.45	0.008	380	++++	+++	0 to +	+++	+++ to ++++
Butter	2 oz.	60 Gm.	0	1	51	0.01	0.01	0.000	465	++++	0 to +	0 to +	+++ to ++++	0 to +
Strained spinach	4 fl. oz.	120 Gm.	4	2	1	0.08	0.08	0.003	30	+++ to ++++	++ to +++	++ to ++++	0 to +	+++
Scraped beef	2 tbsp.	30 Gm.	0	6	2	0.00	0.02	0.001	40	++	+++	++	++	+++ to ++++
Orange or grapefruit juice (or)	6 fl. oz.	180 Gm.	18	0	0	0.05	0.03	0.000	70	++ to +++	+++	++++	0 to +	++ to +++
Tomato juice	6 fl. oz.	180 Gm.	7	2	1	0.01	0.03	0.001	45	+++	+++	++++	0 to +	++ to +++
Halibut liver oil	10 drops	.....	..	..	..	....	....	.....	..	++++	.....	.....	++++	
Brewers' yeast	1 tbsp.	10 Gm.	4	5	0	0.00	0.16	0.013	35	.....	++++	.....	.....	++++
Ferric ammonium citrate	½ tsp.	2 Gm.	..	..	..	....	....	0.238						
Table salt	1 tsp.	5 Gm.												
Totals			402	79	116	1.33	1.59	0.266	2,960	++++	++++	++++	++++	++++
Percentage of total calories			54%	11%	35%									

5. Ebeling, W. W.: Absorption of Dextrose from the Colon, Arch. Surg. **26**: 134 (Jan.) 1933.

free flow of saliva is produced to wash away any bolus of food held up in the esophagus. During the waking hours the saliva is swallowed, or expectorated when the obstruction is complete; but when the patient is falling asleep the accumulation of saliva often causes him to wake up choking when it has overflowed into the trachea. At such times marked relief can be obtained by the use of small subcutaneous doses of atropine sulfate, or a dual effect of diminution of the salivary secretion and of sedation can be obtained by the use of scopolamine hydrobromide.

Feeding is most satisfactorily accomplished by the use of a syringe of the Asepto type, the barrel of which can be used as a funnel. If the formula mixture should not flow in satisfactorily by gravity, the rubber bulb can be attached and light pressure applied.

The details of the diet are reviewed with the patient or some other member of his household, and he is provided with the following instruction sheet at discharge:

INSTRUCTIONS FOR GASTROSTOMY FEEDING

Prepare one cup of oatmeal, using 2 level tablespoonfuls of dry oatmeal cereal in a cup of water. Cook in a double boiler for at least one hour, preferably two, then strain through a fine strainer into a container having a mark to indicate a level at 7½ cups (use accurate measuring cup).

Add:

1¼ cup of corn syrup (dark),
¼ cup or 4 tablespoonfuls of melted butter,
½ cup or 1 small can of strained baby vegetable purée, preferably spinach,
1 heaping tablespoonful of brewers' yeast powder, and
1 level teaspoonful of table salt.

Poach five eggs lightly and push through a fine strainer. Stir a small amount of milk into the strained egg until it is of a thin creamy consistency and then add to the feeding mixture.

Add enough pasteurized milk to bring the total volume up to the mark previously made at 7½ cups.

Place in refrigerator.

To use:

Stir the mixture. Pour off 1¼ cupfuls into a small container and warm lightly. Give the mixture through the tube using an Asepto syringe barrel or a funnel. Follow with 1 ounce of water to clean the tube.

Special Feeding:

At 10 a. m. add slowly two thirds of a cup of strained orange, tomato or grapefruit juice to 2 tablespoonfuls of beef scrapings (best obtained from top round of beef). Stir constantly or beat to prevent the formation of lumps. Strain to remove any meat shreds, which may plug the tube. Add 1 teaspoonful of the prescribed iron solution and 10 drops of halibut liver oil. Give the mixture through the tube, using the syringe barrel or a funnel. Follow with 1 ounce of water.

Feeding schedule:

1. Give 1¼ cupfuls of the feeding mixture at 8 a. m., 12 noon, and at 2, 4, 6 and 8 p. m.

2. Give the special feeding at 10 a. m.

Feedings should be given with the patient lying down, and the patient should remain on the back or right side for fifteen minutes following each feeding.

The patient may take additional water or clear broths by mouth when he is able to swallow them.

The tube should be kept in place at the same depth at all times unless it becomes plugged. If this occurs, loosen the fastenings and withdraw the tube. Clean the tube and force water through it with the syringe. Lubricate the tip with liquid petrolatum, and reinsert the tube gently to its original depth and replace the fastenings. If any resistance is met with, do not force the tube in but call your family physician or return to the hospital at once for assistance. The tube should not remain out for more than a short while. Return to your physician or to the hospital at least once a month for examination and for replacement of the tube.

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GALLBLADDER CONTRACTILITY AFTER BLOOD TRANSFUSION

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Philip Sandblom of Sweden in 1933 apparently completed the explanation of the method of gallbladder contraction. Evarts Graham, using what now is called the Graham-Cole method of cholecystography, proved conclusively that the gallbladder contracted. Ivy isolated his cholecystokinin from the mucosa of the duodenum of dogs and demonstrated that the contraction is initiated by a hormone.

Sandblom apparently proved that this hormone is transmitted through the circulating blood, by demonstrating that the gallbladder in fasting individuals contracted following the reception of blood from a donor who had previously eaten a fat meal. This work seemed to us of tremendous importance. Using his conclusions as a basis, we decided to continue the experiment along the following lines: We wished to see, first, whether the human equivalent of cholecystokinin was carried in the blood serum or in the cellular structure; secondly, if it was carried in the serum, whether it might be possible to concentrate the serum so as to isolate the hormone; thirdly, whether the contraction in human beings was due to a hormone at all or simply to the high fat content of the blood serum, and, finally, whether it would be possible to get a concentrate of such strength that, by means of small doses, we would have a method of producing gallbladder contraction which would be of both clinical and experimental value.

The first step of the work consisted in obtaining high fat content blood serum and watching its effect on the emptying time of the gallbladder. In brief, the experiment was conducted as follows: Nine normal, healthy individuals with negative Wassermann and Kahn serum reactions, who presented themselves to the Serum Center of the Michael Reese Hospital, were chosen. These patients reported in the morning without breakfast and were given 8 ounces (236 cc.) of a meal consisting of 32 per cent cream, 2 egg yolks, 1 teaspoonful of sugar and 1 teaspoonful of cocoa. Blood was drawn from an hour to an hour and a half after the ingestion of this meal. The blood was allowed to clot, the bottles were then placed in centrifuge, and the serum, without separation of the fat, was withdrawn and pooled. The resultant serum in each case was thick and milky white and when tested for fat showed a four-plus, three-plus or two-plus reaction. Tricresol was added and the serum then kept under sterile conditions in 100 cc. bottles in the icebox.

N. R. was selected for the test, Dec. 5, 1934. A cholecystograph, which had been made a week previously, showed a good concentration of the dye and a normal emptying of the gallbladder, although one large calculus was found to be present. (Choosing of a patient with a gallstone was premeditated because it was intended, should the gallbladder empty, that the test be repeated later at the time of operation and the gallbladder contraction actually visualized while the abdomen was open). The patient was given gall-

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From the Group for the Study of Diseases of the Biliary Tracts of Michael Reese Hospital.

bladder dye on the evening of December 4 and in the morning the film showed a large distended gallbladder, good concentration of the dye, and a single calculus. One hundred cubic centimeters of high lipoid serum was given intravenously, and films taken ten minutes, one-half hour, one hour and two hours later showed that the gallbladder still retained approximately its original shape and opacity. After two hours the usual fat meal was given, and films taken an hour later showed that the gallbladder had evacuated. Thinking that perhaps the failure to obtain gallbladder contraction might be explained on the basis of an insufficient amount of serum, we repeated the test.

In the second case the gallbladder had shown a normal concentration and emptying on previous x-ray studies. M. G. was given the usual amount of dye on the night of December 17, and a picture taken fourteen hours later, with the patient fasting, showed a good concentration of dye and an apparently normal, well distended gallbladder. Two hundred cubic centimeters of high lipoid serum was given intravenously and the gallbladder failed to contract, as shown by x-ray studies, ten minutes, one-half hour, one hour and two hours afterward. Two and one-half hours later the patient was given egg yolk by mouth, and it was found that the gallbladder then emptied normally.

These first two experiments clearly indicated that 200 cc. of high lipoid serum, obtained from individuals who had eaten a fat meal, failed to produce an emptying of the gallbladder, although in both instances it was shown that the gallbladder did function normally by the fact that after the ingestion of the usual fat meal the gallbladder emptied in the normal manner.

At this stage it became obvious to us that we had perhaps been in error in accepting the work of Sandblom and that it would be necessary to repeat his original experiments. The following two experiments are typical of the seven which we conducted to prove or disprove his contentions:

Jan. 10, 1935, W. G., who had on previous x-ray investigation been shown to have a normally filling and emptying gallbladder, was chosen because it had been contemplated to give this patient a blood transfusion before performing an exploratory laparotomy for a possible carcinoma of the sigmoid. The night of January 9 the patient was given the usual amount of gallbladder dye. A roentgenogram taken after fourteen hours, with the patient fasting again, show a well filled gallbladder with normally concentrated dye. The patient's brother, who was to act as donor, was given a breakfast consisting of 6 ounces (180 cc.) of cream and the yolks of two eggs. An hour and a half later 500 cc. of blood was transfused from this donor into the veins of the patient by the multiple syringe method. Roentgenograms taken fifteen minutes, one-half hour, one hour and two hours later failed to show any contraction of the gallbladder. The patient was then given the fat meal, and roentgenograms taken at intervals thereafter showed the normal emptying responses an hour later.

S. O. presented a questionable diagnosis. Previous roentgenograms had shown that the gallbladder filled, concentrated and emptied normally. In the fourth experiment, roentgenograms taken on the morning of May 20, while the patient fasted fourteen hours after the ingestion of gallbladder dye, showed normal filling and concentration of the gallbladder. At 8:40 a. m. the donor was given a fat meal of 6 ounces of cream and the yolks of two eggs. At 9:35 this meal was repeated. At 10:10, 500 cc. of blood was withdrawn by multiple syringe from the donor and injected into the veins of the patient. Roentgenograms fifteen, thirty and sixty minutes later showed no contraction of the gallbladder. At 11:30 the patient was given a fat meal by mouth and at 12:30 the gallbladder was empty.

Five more experiments were identical except that the blood transfusions were done at slightly different intervals, varying from thirty-five minutes to an hour and ten minutes after the donor had received a fat meal. In each instance it had been established previously that the various subjects in question had normal functioning gallbladders. In none of the seven patients did the reception of 500 cc. of fresh blood, taken from donors who had had a fat meal from thirty-five minutes to one and one-quarter hours previously, cause any clearly demonstrable contraction of the gallbladder, and in every instance it was shown that the normal gallbladder responses were present, by the fact that after the subject himself or herself had eaten a fat meal the gallbladder emptied.

CONCLUSION

From these experiments, we must conclude that:

1. High lipoid content serum in amounts of 100 and 200 cc. fails to cause gallbladder contraction.
2. The transfusion of 500 cc. of blood from a patient who has first been given the usual so-called gallbladder fat meal fails to produce demonstrable gallbladder contraction in the recipient.

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DELINQUENT PATIENTS IN VENEREAL DISEASE CLINICS

RESULTS OF A STUDY IN BALTIMORE CITY HEALTH DEPARTMENT

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BALTIMORE

In the summer of 1935 it became possible to make a survey of the activities of the venereal disease clinic of the Baltimore City Health Department because of clerical assistance furnished by the Baltimore Emergency Relief Commission. In that study an attempt was made to evaluate the effectiveness of the city clinics from the standpoint of curtailing the spread of syphilis. A detailed analysis was made of all new patients admitted during the period beginning July 1 and ending Dec. 31, 1933.

In order to draw any conclusions from this study it will be necessary to outline briefly certain facts concerning the venereal disease clinics in Baltimore in 1933. During that year 4,558 new cases were admitted, of which number 2,595 were of syphilis. A total of 102,352 visits were made to the clinics. In 1931, two years previously, a total of 2,109 new cases had been admitted. Of these, 1,383 were new cases of syphilis, and 57,043 visits to the clinics were recorded. Thus there had been in 1933 an increase of 118 per cent in total admissions and 79 per cent in the total number of visits to the clinics as compared with the year 1931. Prior to 1933 the venereal diseases had been under the control of the Bureau of Communicable Diseases. At that time a bureau of venereal diseases was established.

Prior to the organization of the bureau there had been little attempt to follow up delinquent patients or to determine sources and contacts of new cases and bring them under treatment. No special effort had been made to keep syphilitic mothers under continuous treatment during pregnancy, nor had arrangements been made for Wassermann tests in the case of their children. It was nevertheless felt that a study of the clinic histories of patients admitted during the latter half of 1933 would form a base line for future comparisons, as the patients admitted during that period had had ample time to complete treatment by July 1935.

SOME BASIC FACTS IN THE CONTROL OF SYPHILIS

It is well established that in primary and secondary syphilis:

1. The earlier a diagnosis is established and prolonged treatment instituted, the better are the chances of curing the patient.

EARLY LATENT CASES

In Baltimore the term "early latent" applies to those cases which do not come under treatment until after the completion of the secondary period but do so before three years after the original infection. It can be taken for granted that in these a natural immunity has developed to the maximum degree. Consequently, the danger of injuring these patients by an insufficient number of treatments is not so great. However, treatment should be given to this group for the maximum period of time and with as much regularity as can be reasonably obtained.

LATE LATENT CASES

In the late latent group are found those cases of syphilis in which three years has elapsed since the development of the primary chancre or secondary manifestations and in which the Wassermann reaction is still positive, owing to insufficient treatment. From the standpoint of infectivity these cases are of much less direct interest to the public health officer. They constitute a great social and economic problem, however. From 12 to 15 per cent of the inmates of asylums are recruited from this group. Furthermore, from 10 to 12 per cent of these patients are incapacitated by the cardiovascular complications of the later years. These cases present special therapeutic problems for the practitioner of medicine. Intelligent treatment would make it possible to arrest the development of untoward symptoms and enable these people to earn their living. In this manner it should be possible to save millions of dollars to the taxpayers of the future. Further than this statement of the problem, no attempt will be made to consider the late latent group in this article.

Table 1.—*Percentage of Patients Receiving a Specified Number of Treatments, Based on Records of 827 Cases Admitted Between July 1 and Dec. 31, 1933*

Group	Number of Treatments: Under 8	9-15	16-23	24-31	32-39	40-47	48-55	56-63	64 Plus	Summary: Under 40	Over 40
White male	8.19	9.84	13.11	11.48	3.28	9.83	11.48	3.28	29.51	45.90	54.10
White female	15.09	9.43	11.32	3.78	7.54	13.21	11.32	5.66	22.65	47.16	52.84
Colored male	23.43	11.29	13.81	4.60	12.97	7.12	8.36	9.63	8.79	66.10	33.90
Colored female	24.05	13.08	12.87	11.81	8.23	9.28	6.75	4.64	9.29	70.04	29.96

Table 2.—*Clinic Status of Primary and Secondary Cases Admitted June 1 to Dec. 31, 1933, Not Receiving Full Treatment, per Thousand Such Patients*

Clinic Status	Number of Treatments: White Males and Females: Under 8	9 to 15	16 to 23	24 to 31	32 to 39	40 to 47	48 to 55	56 to 63	Total	Colored Males: Under 8	9 to 15	16 to 23	24 to 31	32 to 39	40 to 47	48 to 55	56 to 63	Total	Colored Females: Under 8	9 to 15	16 to 23	24 to 31	32 to 39	40 to 47	48 to 55	56 to 63	Total
Total	80	141	189	144	64	191	127	64	1,000	300	139	137	35	165	87	69	68	1,000	254	100	155	150	109	83	58	91	1,000
Still under treatment	..	..	..	48	48	80	95	16	287	..	9	..	9	35	17	43	59	172	..	8	25	59	59	59	50	83	343
Transferred to physicians	..	..	32	..	..	..	..	..	32	9	9	..	..	..	..	..	..	18	8	..	..	..	..	..	..	..	8
Transferred to institutions	..	..	..	..	..	..	..	..	..	..	..	9	..	..	..	..	..	9	8	..	..	8	..	..	..	..	16
Left city	..	..	..	48	..	32	..	..	80	26	..	..	9	9	9	..	..	53	17	..	17	8	17	8	..	..	67
Unable to locate	32	32	16	16	..	16	..	..	112	145	52	52	17	43	35	9	..	353	108	8	17	42	17	8	8	..	208
Uncooperative	..	16	32	..	..	..	..	..	48	52	43	76	..	43	9	..	..	223	25	17	8	8	8	8	..	..	74
No reason given	48	93	109	32	16	63	32	48	441	68	26	..	..	35	17	17	9	172	88	67	88	25	8	..	..	8	284

2. If no treatment is taken by the patient a certain amount of immunity is developed, up to the completion of the secondary stage, and incomplete treatment, if begun prior to the end of the secondary period, prevents or destroys the development of natural immunity by the host and thereby makes the patient more susceptible to infectious relapses and to the development of serious late lesions of the cardiovascular and cerebrospinal systems.[1]

From the last statement it should not be inferred that anything is gained by putting off treatment until the secondary stage is past. On the contrary, every effort should be made to begin treatment, if possible, in the seronegative stage when the diagnosis is based on a darkfield examination. It is important that once treatment is begun in an early case it be continued to completion. The practice current in the past by which it was thought that a few treatments sufficient to clear up the infectious lesions would protect the community is reprehensible in the face of modern knowledge.

THE AIMS OF TREATMENT

Following the time when the Wassermann reaction becomes permanently negative, the goal established for ideal treatment should be not less than four alternating courses consisting of eight weekly injections of an arsenical and eight weekly doses of a heavy metal. Without reaching this ideal goal, and viewed from the

1. Moore, J. E.: Modern Treatment of Syphilis, Springfield, Ill.: Charles C. Thomas, 1933, pp. 26-28.

standpoint of safety from future infectiousness, the minimal optimal treatment should not be less than twenty doses of an arsenical and twenty doses of a heavy metal, taken at weekly intervals in interchanging courses of eight doses each. It follows, then, that the number of patients who receive the minimal optimal number of treatments constitute the criterion by which the effectiveness of a treatment clinic service can be gaged.

There follows an analysis of the number of treatments received by patients admitted during the period July-December 1933. It is presented in order to show to what extent the venereal disease clinics of the Baltimore City Health Department were then discharging their responsibility.

RESULTS OF THE STUDY

From table 1 it will be seen that the minimal optimal number of treatments (forty) were received by more than one half of the white patients as against one third of the colored group. The contrast between the percentages of patients receiving various numbers of treatments, white and colored, lies primarily in the percentages of patients receiving less than eight treatments and those receiving sixty-four or more. For white patients, roughly one fourth received the full course of treatments; in colored patients, about one fourth dropped out before receiving eight treatments.

There is very little difference in the number of treatments received by males and females of the same race. However, in the group that received less than eight treatments are found twice as many white women and three times as many colored males and colored females as white men.

Tables 2 and 3 present an analysis of the number of treatments received by patients who did not complete their four courses of treatment, classified according to their status as to clinic attendance in July 1935. A comparison of these two tables shows that the proportion of white patients with primary and secondary lesions who had not completed full treatment and were still attending the clinic was the same as the proportion of white patients with latent syphilis. This situation holds also for colored patients with primary and secondary lesions as compared with colored patients with latent syphilis. For the first group (white males and females) 28 per cent remained under treatment and for the second group (colored males) 17 per cent. In the case of colored females, however, 34 per cent of patients with primary and secondary lesions remained under treatment as compared with 26 per cent of patients with latent lesions.

Colored males were more commonly lost because of change of location and for lack of cooperation than white males and females. No reason is known for the loss of 40 per cent of all cases. A study of the histories frequently showed that lack of cooperation, the age of the patient and the stage of the disease to a certain extent explained many of these delinquents. It is interesting to note in table 2 that there was no apparent reason for the loss of 44 per cent of the primary and secondary white cases.

Table 4 shows that, among the patients with primary and secondary lesions who continued treatment at the clinic until the minimal optimum of forty treatments was received, there were twice as many white males and females as colored males and females. White patients with latent syphilis did not continue treatment for such a long time as white patients with primary and secondary lesions. On the other hand, both colored males and females with latent syphilis continued their treatments longer than patients of the same race with primary and secondary lesions. In the case of colored males with latent syphilis, nearly as high a percentage received forty or more treatments as did white patients with latent syphilis. The figures are 40 per cent for the colored males and 46 per cent for the white males and females.

TABLE 3.—*Clinic Status of Latent Cases Admitted June 1 to Dec. 31, 1933, Not Receiving Full Treatment, per Thousand Such Patients*

Clinic Status	Number of Treatments: White Males and Females								
	Under 8	9 to 15	16 to 23	24 to 31	32 to 39	40 to 47	48 to 55	56 to 63	Total
Total	184	164	142	20	102	142	164	82	1,000
Still under treatment	..	..	..	20	61	20	103	82	286
Transferred to physicians	..	..	..	..	..	..	..	..	...
Transferred to institutions	41	..	..	..	..	41	..	..	82
Left city	41	..	20	..	..	41	..	..	102
Unable to locate	20	41	..	..	..	..	..	..	61
Uncooperative	41	20	..	..	..	20	..	..	81
No reason given	41	103	122	..	41	20	61	..	388

Clinic Status	Number of Treatments: Colored Males								
	Under 8	9 to 15	16 to 23	24 to 31	32 to 39	40 to 47	48 to 55	56 to 63	Total
Total	212	96	171	86	106	64	158	107	1,000
Still under treatment	..	..	..	..	64	11	32	64	171
Transferred to physicians	..	..	..	..	..	..	..	..	...
Transferred to institutions	..	11	11	11	..	..	..	..	33
Left city	..	..	21	..	..	..	..	..	21
Unable to locate	64	32	32	11	21	..	..	..	160
Uncooperative	64	21	64	43	..	..	..	..	192
No reason given	84	32	43	21	21	53	126	43	423

Clinic Status	Number of Treatments: Colored Females								
	Under 8	9 to 15	16 to 23	24 to 31	32 to 39	40 to 47	48 to 55	56 to 63	Total
Total	292	140	140	114	83	111	84	36	1,000
Still under treatment	3	7	20	36	42	78	52	26	264
Transferred to physicians	..	..	..	..	3	..	..	..	3
Transferred to institutions	16	..	..	3	3	..	..	..	22
Left city	20	7	13	..	3	7	3	..	53
Unable to locate	117	26	23	26	3	3	3	..	201
Uncooperative	29	26	16	20	..	..	..	..	91
No reason given	107	74	68	29	29	23	26	10	366

COMMENT ON TREATMENT

This detailed study of clinic attendance tends to point out the weak spots in the clinic and field setup and shows where emphasis should be placed in order to improve conditions.

TABLE 4.—*Percentage of Primary, Secondary and Early Latent Cases in Which Forty or More Treatments Were Given, Classified by Color and Sex*

Group	White, Male and Female	Colored	
		Male	Female
Primary and secondary	55.4	28.6	28.3
Latent	46.6	40.0	31.1

A special effort must be made to have regular treatments given in the primary and secondary infectious cases until lesions have cleared up and they become temporarily noninfectious. After this has been accomplished, every effort must be made to enforce weekly treatments to the completion of four courses, if possible, and in all cases to the point at which at least the minimal optimum of forty treatments have been received. Colored males and females in the primary and secondary groups should be given special attention.

In dealing with early latent cases at least twenty treatments of an arsenical and twenty of a heavy metal must be insisted on as minimal treatment. In addition, every effort should be made to have the patient take even more complete treatment. Extreme regularity of treatment, while desirable, is not quite as important as in the case of patients with infectious lesions.

IMPROVEMENTS IN THE FOLLOW-UP SYSTEM

At the present time (1935) five full time social investigators are connected with the Bureau of Venereal Diseases. They consist of three white women, one colored woman and one white man. These workers, besides visiting delinquent contacts, also spend time in the clinics interviewing new patients with the hope of finding sources and contacts of cases.

During seven months beginning February 1935 there were 6,187 delinquent patients reported from the five clinics, an average of 884 per month or about 221 per week. In addition, delinquents not receiving treatment reported by local hospitals and private physicians were visited by the social workers.

At present the histories of all primary and secondary cases absent from the clinic one week and all histories of early latent cases absent on two occasions are sent to the bureau director's office by the clinic clerk at the end of each week. These are carefully scrutinized by the director and any points of special interest are noted. They are then distributed among the workers on a district basis. Patients with primary and secondary lesions and pregnant women are given first consideration. These are visited personally by the investigators. In other cases, when the patient is not found at home, a card is sometimes left advising him or her to return to the clinic. In case the patient has changed his address, the name is reported to the chief inspector in the police department and is in turn given by him to the district police officer, who attempts to locate the patient. All new addresses are reported back to the Bureau of Venereal Diseases and are given out to the social investigators the following week.

Patients who repeatedly do not respond to the visits are finally summonsed to a police magistrate's court, where they are given a warning, which often brings results. In early clinical cases, summonses are issued after the patient has been absent from the clinic on two occasions and in early latent cases after they have been visited three or four times without results. In addition to the visits made by the social workers, form letters or personal letters are sent on occasion by the director of the bureau. These attempt to explain to the patients the dangers of discontinuing treatment and always include a special informative pamphlet. It has been found that letters are about 40 per cent effective. The results are comparable to visits in which the patients are not personally interviewed. All patients who prove to be hopelessly uncooperative are discharged by the director of the bureau. A final letter of explanation and advice is sent at this time.

In the case of contacts, who are also visited by the social investigators, the problem is if anything more difficult. Here persuasion alone must be relied on, as it is impossible to summons a person to a police court in whom the diagnosis of syphilis has not been made. Explanatory letters and printed circulars are often useful.

By following out the methods just described, we hope that in the future the minimal optimal number of treatments will be received by an increased number of patients and also that more patients will complete their four courses of treatment. A comparative study made after the lapse of from one to two years should show definite improvement.

SUMMARY

A study of the delinquency of venereal disease clinic patients in continuing their treatment has been made in order to furnish a base line for future comparisons. While it is not possible to estimate exactly the extent to which a venereal disease clinic service of a city health department discharges its responsibility, this study presents preliminary evidence on that problem.

City of Baltimore Health Department.

THE TREATMENT OF DYSMENORRHEA WITH INSULIN

PRELIMINARY REPORT

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Primary or essential dysmenorrhea has been correctly described as the *bête noire* of gynecology. All the skill, knowledge and ingenuity of the general practitioner and gynecologist are taxed to their capacity in the management of this distressing symptom complex.

A thorough gynecologic examination frequently reveals no pelvic abnormality, and as Novak and Reynolds [1] aptly remark, "the intelligent treatment of this disorder [besides a complete pelvic examination] can never be restricted to the pelvis alone and must include a thorough study which may carry the physician far afield into the domains of internal medicine, endocrinology, psychiatry and other branches of clinical investigation."

The remedies recommended and the procedures adopted are legion. Surgery, such as operations on the cervix (Dudley, Blair Bell, Pozzi), dilation without curettage and dilation with curettage are frequently resorted to. The benefits obtained sometimes give temporary relief over the next few succeeding periods and only occasionally give permanent relief. Alcohol injections of the sacral nerves have been used.[2] There are many references in the literature to the use of laparotomy for resection of presacral sympathetic nerves and for oophorectomy in an effort to give the patient much needed relief,[3] and more recently x-ray and radium exposures have been used to induce sterility and an artificial menopause.[4]

Without being hypercritical of the success obtained with such extreme measures, I would point out that it is quite apparent that not every patient with dysmenorrhea will submit to surgery or to the induction of sterility. On the other hand, one must realize the great suffering of these unfortunate women and the extreme

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1. Novak, Emil, and Reynolds, S. R. M.: The Cause of Primary Dysmenorrhea, J. A. M. A. **99**: 1466 (Oct. 29) 1932.

2. Hofstatter, R.: Monatschr. f. Geburtsh. u. Gynäk. **56**: 2615 (Oct. 22) 1932.

3. Greenhill, J. P., and Schmitz, H. E.: Sympathectomy for Intractable Pain in Inoperable Cancer of the Cervix, J. A. M. A. **101**: 26 (July 1) 1933. De Courcy, J. L.: Resection of Presacral Nerves for Dysmenorrhea, Am. J. Surg. **23**: 408 (March) 1934. Adson, A. W., and Masson, J. C.: Dysmenorrhea Relieved by Resection of Presacral Sympathetic Nerves, J. A. M. A. **102**: 986 (March 31) 1934.

4. Frank, R. T.; Goldberger, M. A., and Spielman, Frank: Present Endocrine Diagnosis and Therapy, J. A. M. A. **103**: 393 (Aug. 11) 1934. Ford, F. A.: Proc. Staff Meet., Mayo Clin. **5**: 142 (May 21) 1930. de Buono, P.: Mechanism and Action of Radiotherapy in Dysmenorrhea, Clin. ostet. **31**: 544 (Oct.) 1929.

measures that they will frequently permit to give them more or less permanent relief. In addition, there is an economic factor which must not be overlooked. Besides the loss in earning power, the embarrassment that they suffer as a result of their periodic incapacity is often the origin of grave psychoneuroses.

The patients with primary dysmenorrhea, excluding those with organic conditions, may be grouped into four main classes:

A. In the first group are those with a hypoplasia (subpubescence of the uterus, with a predominance of the fibrous elements over the muscular). Therapy should be aimed at the development of the uterus, and in these the use of a sex stimulating hormone is indicated.[5]

B. In the second group are those in whom, according to Novak and Hartnik,[6] the dysmenorrhea can be explained on the basis of an anxiety psychoneurosis.

C. Another group of patients is hypersensitive to pain stimuli, and what the normal individual would consider only slight or moderate pain produces severe reactions in this group.

D. There is a distinct group in which endocrine disorder is the cause of the trouble. Novak and Reynolds[7] believe that the cause of dysmenorrhea is an exaggerated contraction of the uterus and not a mechanical obstruction, as was formerly believed. They have shown that follicular hormone stimulates uterine contraction and that progestin inhibits it. They therefore recommend the luteinizing principle from the urine of pregnant women to stimulate progestin formation and so indirectly inhibit the rhythmic contraction of uterine muscle.

Novak[8] does not favor the use of estrogenic substance empirically or on the basis of Kennedy's theory[9] that the symptom is due to degenerative changes in Frankenhauser's ganglion due to diminution of estrogenic substance. On the contrary, Novak[10] says that the estrogenic substance is the natural stimulant of uterine contractility, and that progestin, or the anterior pituitary-like principle, is the inhibitor of uterine contractility. He recommends follutein or antuitrin S, from 100 to 200 units each day for several days before the flow. Novak, however, is not enthusiastic about its results and says that "because of the ever present psychic factor it is difficult to appraise the effect."

In the course of my use of insulin for its metabolic stimulating effect in malnutrition, patient 1, who had always been obliged to go to bed for the first two days of her menstrual period, reported entire absence of pain while under treatment with insulin. During and after the war, in Germany and in Austria, the population suffered from lack of food, especially vitamin and mineral bearing elements, with resultant malnutrition and concomitant functional endocrinopathies. The women in these countries suffered from severe dysmenorrhea as well as from amenorrhea. Mindful of these facts, it appeared to me that the favorable effect of insulin in this patient was due to improvement in nutrition, and so indirectly menstrual relief on a constitutional basis. However, I decided to see its immediate effect on a patient during an attack of dysmenorrhea.

Patient 2 consulted me May 16, 1935, for a severe attack of menstrual pain of twelve hours' duration. She had come in from a midwestern city that day. In order to avoid the possible improvement that might result from suggestion, it was explained to the patient that the remedy being used might not give relief and was not certain in its effect. Fifteen units of insulin, commercial brand C, was given at 2 p. m., followed by liberal quantities of orange juice. In thirty minutes there was complete relief from pain. For the next six hours the patient felt hungry and slightly nervous. She was able to get about. She had always suffered with severe pain for two days of her period, requiring bed rest.

In order to avoid the criticism that the stimulation of sex development and function with the use of insulin was due to the improvement of diabetes, G. A. and R. L. Williams[11] report a case of striking acceleration of body growth and sexual development in a nondiabetic girl, aged 8½ years. While using insulin they noticed an increase in the size of her breasts and periodic abdominal pain simulating menstrual cramps. These effects disappeared when insulin was discontinued and reappeared months later when insulin was resumed.

Without going far afield into the endocrinology of the pancreas and the possible effect of insulin on the other glands, the fact remains that other observers have noted endocrine effects other than stimulation of carbohydrate metabolism by insulin.

In this series of cases, patients were arranged in two groups: Group A, treatment from five to seven days before menstruation, and group B, treatment during the attack. The effects were noted with insulin prepared by different manufacturers, and a definite variation was observed.

CASE 1.—Mrs. M. S. K., aged 26, never pregnant, a former entertainer, consulted me April 15, 1935, for nausea, inability to gain weight, and a chronic cough. She had had lobar pneumonia type V in October 1933, with uneventful recovery except for bouts of coughing since and before the pneumonia. There was no family history of dysmenorrhea. The menses began at 13, occurred every twenty-eight days and she flowed five days, with severe pain requiring bed rest the first two days. She had had several attacks of sinusitis, with an operation for the removal of polyps.

The patient was poorly nourished, was 147 cm. tall and weighed 34.5 Kg. The heart was normal. The lungs showed moist râles at both bases. The blood pressure was 90 systolic, 70 diastolic. Both kidneys were palpable. There was a small uterus, in normal position. The adnexa were normal. Examination of the central nervous system was negative.

Laboratory examination showed: hemoglobin, 78 per cent (Sahli); red blood cells, 4,100,000; white blood cells, 7,320; differential, normal. The urine was normal. The blood Wassermann reaction was negative. The Ewald test meal (one hour) showed free acid, 40 cc.; total acid, 68 cc. Blood sugar (fasting) was 0.68 per cent. The basal metabolic rate was minus 5 per cent. The sputum was repeatedly negative for tuberculosis. A gastro-intestinal series of roentgenograms showed visceroptosis and otherwise were negative. Roentgenograms of the chest showed increased markings at both bases, on the left more than on the right. Roentgenograms of the sinus showed right clouding of the ethmoids and antrums.

Treatment consisted of supporting treatment and insulin, 10 units once daily before the noon meal. After two and one-half weeks of treatment the weight improved to 37.3 Kg.

At the menses, April 25, there was no pain and only slight discomfort; the patient was up and about.

CASE 2.—Mrs. B. C., aged 24, never pregnant, had had pneumonia three times, measles, chickenpox, pertussis, and an appendectomy at 12. The menses began at 13, and were for

5. Spastic Dysmenorrhea, Queries and Minor Notes, J. A. M. A. **100**: 1798 (June 3) 1933.
6. Novak, J., and Hartnik, M.: Med. Klin. **25**: 251 (Feb. 15) 1929; Ztschr. f. Geburtsh. u. Gynäk. **96**: 239, 1929.
7. Novak, Emil: Am. J. Obst. & Gynec. **24**: 319 (Sept.) 1932. Novak and Reynolds.[1]
8. Novak, Emil: The Therapeutic Use of Estrogenic Substances, J. A. M. A. **104**: 1815 (May 18) 1935.
9. Kennedy, W. P.: Brit. M. J. **1**: 746 (April 23) 1932.
10. Novak, Emil: Anterior Pituitary and Anterior Pituitary-like Substances, J. A. M. A. **104**: 998 (March 23) 1935.
11. Williams, G. A., and Williams, R. L.: Insulogenic Stimulation of Sexual Development, J. A. M. A. **104**: 1208 (April 6) 1935.

five to six days' duration, every twenty-nine to thirty days, with severe pain the first day. The basal metabolic rate, Aug. 24, 1934, was minus 11 per cent; blood sugar, 0.96 mg.

The patient was poorly nourished and had a faint systolic murmur at the apex, not transmitted. She weighed 47.3 Kg. The blood pressure was 120 systolic, 80 diastolic.

May 16, 1935, she had come into New York from a midwestern city and had severe abdominal pain with menstruation. Fifteen units of insulin, commercial brand C, followed by a liberal quantity of orange juice, was given. There was relief in thirty minutes, with no further pain during this period. The patient returned to her home in the Middle West.

CASE 3.—L. G., aged 19, single, a clerk, had an uneventful family history. The menses began at 14, were irregular, every twenty-eight to thirty-five days, with moderate flow, of five days' duration; there was severe pain the first two days. She weighed 40 Kg. and was 159 cm. tall.

Physical examination was negative. The basal metabolic rate was minus 12 per cent. There was no rectal or pelvic abnormality. There was no family history of dysmenorrhea.

Treatment was begun, June 13, 1935, with 12 units of insulin, commercial brand B, daily, and on June 27 was changed to 10 units twice a day (self administered). Her weight, June 22, was 41 Kg.

She came to the office for insulin while menstruating; there was no pain or discomfort. July 25 was the next period, with self administration of insulin; there was no pain and she was comfortable. Since discontinuance of the insulin she has had some pain, not always as severe as before treatment was begun.

CASE 4.—L. P., aged 25, a secretary, had the onset of the menses at 14. The periods were somewhat irregular, every thirty to thirty-five days of five days' duration, with excruciating pain the first two days.

Physical examination was essentially negative. Her weight was 55.4 Kg. and her height 162 cm. The blood pressure was 105 systolic, 85 diastolic. Blood sugar was 0.92 mg. The blood count was normal.

She was treated July 1, 1935, five days before her period, with from 7 to 10 units of insulin, brand B. The period of July 6 was attended with very slight discomfort, and she worked. In August while on her vacation she had no treatment and there was severe pain. September 6 she took daily injections of 7 units of insulin B for four days and was comfortable. October 6, she had one injection of 7 units before the period (five days early). There was pain with the period; 5, 7 and 7 units of insulin was given during the first day and on the second, with relief after forty-five minutes. November 9, the period began. She had had insulin, 7 units daily for five days, before the period. There was slight pain; urticarial wheals appeared with the injections. December 16, 10 units was given with the onset of pain, with total relief in one-half hour.

CASE 5.—G. T., aged 33, single, formerly an entertainer, an American, with no family history of menstrual pain, had been operated on in 1931 for salpingectomy and partial oophorectomy for bilateral salpingo-oophoritis, and in 1934 for intraligamentous cyst; i. e., "chocolate cyst" of the ovary. Menstruation was very painful before and after operation; it occurred every twenty-eight days; before operation the flow was from ten to eighteen days. The basal metabolic rate was plus 12 per cent. The blood sugar was 102 mg.

Ten units of insulin twice a day was given for appetite stimulation and weight increase, from July to September 1935. During the course of treatment the menstrual periods were painless.

CASE 6.—L. R., aged 12½ years, a school girl, whose menses began at 10½ years, had a period every twenty-eight days, of five days' duration, the first two days of which were extremely painful and the patient would be bedridden.

She had had measles and pertussis, a tonsillectomy at 6 and an appendectomy at 10. The child's mother was a cardiac patient but did not have menstrual pain.

Physical examination revealed rheumatic heart disease with a double mitral valve. Rectal examination showed no pathologic pelvic condition.

July 31, 1935, insulin, brand C, was begun, and 6 units was given daily for five days preceding the period, August 5, at which time the child was at play and reported absence of pain. At the September 4 period insulin, brand A, 6 units daily, was given; there was some pain. For the next period, October 6, administration of insulin C, 6 units, was made by the mother daily for one week before the period. There was entire relief of pain and the patient was comfortable. In November the patient was out of town; a letter received from her told of administration by the mother daily for four days before the period, followed by very slight discomfort "hardly enough to talk about." In December she was still out of town; a letter received on the 9th reported daily administration by the mother for six days preceding the period and total relief from pain.

CASE 7.—M. J., aged 19, a typist, had periods every twenty-eight days for five days. Weighed 52.5 Kg., and was 163 cm. tall. Blood pressure was 95 systolic, 70 diastolic.

Laboratory examination showed: hemoglobin, 70 per cent; red blood cells, 3,990,000; white blood cells, 7,950, with differential normal; blood urea, 14.1 mg. per hundred cubic centimeters; creatinine, 1.3 mg.; sugar. 84 mg.; sugar tolerance test, normal (two hours).

July 20, 1935, insulin, brand C, was given for four days, resulting in only slight pain with the period. August 18, insulin, brand A, 7 units daily for eight days, delayed the period three days and resulted in severe headache and no relief of pain. At the November 14 period there was no pain. Insulin, brand C, 10 units, had been given for three days before the period.

CASE 8.—D. H., aged 23, a stenographer, weighing 51.7 Kg. and 166 cm. tall, menstruated every twenty-three days, for five days, with excessive flow. Rectal examination showed no definite pelvic disorder.

Insulin, brand A, 8 units daily for one week, delayed the period three days; there was headache and no relief. During the period beginning Sept. 30, 1935, 10 units of insulin was given with temporary relief after one hour. The pain recurred in six hours. Relief was again obtained after one hour.

CASE 9.—A. E., single, aged 38, started to menstruate at 14, every twenty-eight days for five days, with severe pain the first two days. She would be bedridden the first day. She weighed 55.4 Kg. and was 152 cm. tall.

History revealed pneumonia, measles and chickenpox in childhood, and influenza. The patient suffered with brachial and sciatic neuralgia with a change in the weather.

Insulin brand B, 10 units, given during an attack, Sept. 6, 1935, relieved the pain in forty-five minutes, and the patient was comfortable for the rest of the day.

CASE 10.—Mrs. I. R., aged 24, a secretary, weighed 49 Kg. and was 150 cm. tall. The menses began at 11 and occurred every twenty-eight days, for six days. Profuse flow with clots occurred on the third and fourth days. Examination was negative.

Oct. 9, 1935, insulin, brand B, 10 units, was given for the pain in the abdomen and down the thighs on the first day, with relief in forty minutes.

CASE 11.—H. R., aged 27, unmarried, a registered nurse, weighing 60 Kg. with a height of 157 cm., started to menstruate at 12, every twenty-eight days, for five days. Rectal examination revealed no abnormality.

Oct. 7, 1935, for severe, excruciating pain at the onset, insulin, brand B, 10 units, was given. In thirty-five minutes there was partial relief. In one hour it was complete, with a feeling of relaxation. It induced free flow. November 6, menstruation began with severe pain in the abdomen and thighs. Ten units of insulin, brand B, self administered, gave relief in thirty-five minutes.

CASE 12.—I. W., aged 26, single, a registered nurse, was 165 cm. tall and weighed 58.2 Kg. The menses began at 14, every twenty-nine to thirty days, of four days' duration, with moderate flow. There was severe pain requiring bed rest on the first day.

Physical examination, including the rectum, was negative. Blood sugar was 104 mg., and blood urea nitrogen 14.3 mg. Roentgenograms of the chest and the basal metabolic rate were normal.

Insulin, brand C, 8 units, was given for five days before the period. The patient began menstruating Dec. 1, 1935, with no pain. For the second period, December 31, insulin, brand C,

8 units, was given daily for four days preceding menstruation, resulting in absolute freedom from pain during the entire period.

COMMENT

Of the twelve cases presented here, insulin was given for from three to seven days before the menstrual period in eight. In seven, with the use of insulin, commercial brands B and C, definite modification and avoidance of pain was effected. With the use of insulin, brand A (second period in cases 7 and 8) there was a delay of three days in the menstrual period in each case, severe headache at the vertex and no relief from pain.

In the four other cases in which insulin, brand B or C, was given during the attack of pain, without previous premenstrual medication, complete relief was effected, in each one from thirty minutes to one hour. There was no severe insulin shock in any case, although patient 4 reported sweating when more than 7 units was used. However, she did not follow instructions with regard to the ingestion of orange juice and other carbohydrates.

As was noted by other workers with insulin,[12] not every brand of commercial insulin contains the activating substance necessary to be effective in this condition.

Insulin has been used in gynecology for various hemorrhagic conditions with interesting results.[13] Abel,[14] in experiments on animals, reported a long estrus pause with a decrease in the number of follicles and an increase in the corpora lutea. Poulain-Landrieu [15] mentions the beneficial uses of insulin in the various uterine hemorrhagic conditions and also mentions its use as of value in some cases of dysmenorrhea. Although he does not cite any cases or state the number of patients to whom the treatment was given, he says that it should be tried in every case of functional dysmenorrhea.

In the group of cases here reported, most of the patients were underweight and had a lowered basal metabolic rate. None of them showed stigmas of hysteria or psychoneuroses or evidence of other endocrinopathies. The blood sugar levels, when taken, were within normal limits. No severe insulin shock was encountered. With the exception of case 5, there was no pathologic condition of the pelvis noted, and even in this case, with extensive intra-abdominal adhesions and previous salpingo-ovarian disorder, there was entire absence of menstrual pain during the time of insulin administration.

In ten of the twelve cases here reported, definite relief was obtained with insulin, either premenstrual or during the pain. Patient 4 expressed her preference for the premenstrual method of administration because it removed the anticipation of a painful period. On account of her menstrual irregularity and the pressure of institutional work, she omitted the daily administration before her last period (December 1935) but gave herself 10 units with the onset of pain. She was completely relieved in twenty minutes.

The use of insulin for dysmenorrhea offers an effective, simple and inexpensive means of relief. If properly used, it is entirely safe. It is too early to say definitely whether it is capable of altering the patient's condition so that after its use for some time there will be permanent absence of pain. The reports of its success in this group of cases are gratifying. Further metabolic and endocrine studies are in process in some of these patients and will be in others as they present themselves.

SUMMARY

In a group of twelve patients, all nulliparas, suffering from primary or essential dysmenorrhea, ten received practically total relief from menstrual pain by using insulin from three to seven days before or during the period. One patient obtained relief in one period with one type of insulin and no relief during another period with another type of insulin. Another patient was only partially relieved.

350 Central Park West.

12. Fleiderbaum, J.: Ztschr. f. klin. Med. **124**: 86, 1933. Williams and Williams.[11]
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14. Abel, P.: Arch. f. Gynäk. **147**: 444, 1931.
15. Poulain-Landrieu, O.: Valeur de thérapie de l'insuline dans certaines troubles ovariens, Prog. méd. **49**: 1949 (Dec. 1) 1934.

Clinical Notes, Suggestions and New Instruments

COMA DUE TO BROMIDE INTOXICATION

ERLE B. CRAVEN JR., M.D., AND FORREST J. LANCASTER, M.D., LEXINGTON, N. C.

A white woman, aged 59, had been in a state of alternate coma and delirium for four months. The family history was irrelevant, and except for a chronic or recurring pyelitis there was nothing in the past history that was considered important.

The present illness began insidiously on or near July 20, 1935, and followed a long illness of the patient's daughter. The burden of nursing the daughter had fallen on the patient. The onset was characterized by restlessness, marked emotional instability and disordered, frightening dreams. During the ensuing two weeks these symptoms were intensified, and the patient also complained of blurring of vision and loss of memory. Members of the family noted that there were increasing weakness and ataxia and a growing lethargy. The patient's speech became slurred and her facies vacuous. August 11, approximately three weeks after the onset of the noticeable symptoms, the patient's lethargy had progressed to the point of deep stupor. She lay in this semicoma until November 22, on which day she first showed signs of returning reason. During the period of coma there were frequent outbursts of maniacal excitement, which necessitated restraint. The attacks of mania were apparently reactions to fear-inducing hallucinations. These hallucinations took many forms, but the most frequently recurring were visions of yellow bugs crawling on the bed, policemen threatening the patient with guns, and vague, alarming shapes on the walls and ceiling of the room. The patient's diet during the entire period consisted of liquids exclusively, low in quantity and in salt content. The feedings were all forced, the patient taking no food voluntarily. Dextrose solution was given occasionally, both intravenously and by rectum.

On physical examination, November 12, the patient was maximally undernourished and lay in a deep stupor. The temperature was 99 F., the pulse rate 120, and the respiratory rate 18. The latter was not irregular. There were occasional myoclonic movements of the extremities and facial grimacings. The knees were flexed at right angles and in a state of contracture. The skin and mucous membranes were excessively dry, and the tongue was grossly furred. The pupils were pinpoint in size. After dilation with homatropine, ophthalmoscopic examination revealed clearly outlined optic disks and normal retinal arteries. There was a pronounced doughlike rigidity of the arms and legs, and the tendon reflexes were markedly hyperactive. The abdominal reflexes were unobtainable. There was no ankle or patellar clonus, and the Babinski and Kernig signs were negative.

Examination of the blood showed red blood cells 4,800,000, hemoglobin 94 per cent (Sahli) and white blood cells 7,400, with a normal differential count. The stained smear showed no abnormalities. A voided specimen of urine showed a few white blood cells but no albumin, sugar or casts. Blood urea was 20 mg. per hundred cubic centimeters.

The spinal fluid was under normal pressure and reacted normally to jugular compression. It was water clear and contained no excess globulin or cells. The total halides of the spinal fluid were 706 mg. per hundred cubic centimeters (120.7 milliequivalents per liter). The spinal fluid bromides were 452 mg. (44 milliequivalents per liter) and the chlorides, 449 mg. (76.7 milliequivalents per liter). The replacement of halide by bromide amounted to 36.4 per cent. The Wassermann reaction was negative.

November 14, sodium chloride therapy was begun. Twelve grams of salt, in capsules, was given by mouth daily. In addition, physiologic solution of sodium chloride was instilled into the rectum in quantities of 90 cc. every four hours. An attempt was made to increase the total fluid intake to 6,000 cc. daily. No sedatives or other medicines were given. Five days after the institution of treatment the patient became rational for brief periods, and during these moments she was able to recognize members of her family. Two days later she was rational during most of the daylight hours, but at night the frightening dreams continued to interrupt her sleep. She was excessively weak, and there were tremors about the mouth and eyes and of the hands. Recovery from then on was uneventful, the tremors, weakness and nervousness gradually disappearing. The contractures of the legs were relieved by massage and passive movements.

After complete recovery it was found that the patient's memory had been lost not only for the four months of the acute illness but for a period extending back to July 4, antedating the onset of the delirium by nearly three weeks.

The patient's mentation and behavior were now those of a normal individual, and she was able to give us the history of the early bromide ingestion. For many years she had taken a "patent" bromide preparation [1] during times of emotional or mental distress. During the severe illness of her daughter, with its attendant worry and loss of sleep, she had taken refuge in this preparation more than ordinarily. After the onset of the delirium, bromides were administered in a mistaken, but understandable, effort to control the great restlessness and excitement. A gram of the drug was given from four to six times daily over a long period of time. This, together with the necessity for a liquid diet, naturally poor in salt (which favored the storing rather than the excretion of the offending halide) adequately explains the extraordinary quantity of bromide found in the cerebrospinal fluid.

COMMENT

This case is presented because of the several features of unusual interest; namely, the duration of the coma, the complete recovery, and the extremely high bromide content of the cerebrospinal fluid.

As one of us has written in a previous article [2] and as the papers of McFadden,[3] Wile,[4] Harris and Hauser,[5] Diethelm,[6] Wagner and Bunbury,[7] Zondek and Bier [8] and others may attest, the signs and symptoms of bromide poisoning recur with regularity sufficient to constitute a clinical syndrome. Moreover, we believe that cases of profound poisoning are of frequent and widespread occurrence, not only as a result of self medication but as a complication of the treatment of many chronic and acute illnesses. It is important to realize that the induction of bromide delirium is not concerned solely with the ingestion of bromides but is governed also by the factors controlling bromide excretion; namely, the salt and fluid intake. Because of the usual absence of skin rashes [9] and because a history of the ingestion of bromides is often unobtainable or unremarked, the etiology of these puzzling coma-delirium states is but rarely comprehended. The diagnosis should be suggested by the typical signs and symptoms, together with the negative evidences of systemic and cerebrospinal disease.

Given a comatose or delirious patient, lacking the signs, both clinical and chemical, of constitutional disease and in whom the evidences of upper motor neuron damage are conspicuously absent, the diagnosis of bromide intoxication should receive early consideration. Confirmation of the diagnosis is easily and positively made by the quantitative determination of the bromides of the blood or cerebrospinal fluid, or both.

SUMMARY

1. In a woman, comatose for four months, the only positive etiologic factor discovered was an extremely high bromide content of the cerebrospinal fluid.

2. Quick recovery from the coma was obtained by the use of measures designed to increase bromide excretion.

3. On the basis of data found in the literature, and from personal experience, it is suggested that there is a typical symptom complex of bromide intoxication which, in suspected cases, gives sufficient warrant for a quantitative determination of the offending halide even in the absence of a history of bromide ingestion.

19 West Third Avenue.

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2. Craven, E. B., Jr.: The Clinical Picture of Bromide Poisoning, Am. J. M. Sc. **186**: 525 (Oct.) 1933.
3. McFadden, J. F.: Neuropsychiatric Manifestations of Bromism, M. Clin. North America **11**: 541 (Sept.) 1927.
4. Wile, U. J.: Bromide Intoxication, J. A. M. A. **89**: 340 (July 30) 1927.
5. Harris, T. H., and Hauser, Abe: Bromide Intoxication, J. A. M. A. **95**: 94 (July 12) 1930.
6. Diethelm, Oskar: On Bromide Intoxication, J. Nerv. & Ment. Dis. **71**: 151 (Feb.) 1930.
7. Wagner, C. P., and Bunbury, D. Elizabeth: Incidence of Bromide Intoxication Among Psychotic Patients, J. A. M. A. **95**: 1725 (Dec. 6) 1930.
8. Zondek, H., and Bier, A.: Brom im Blute bei Manischdepressivem Irresein, Klin. Wchnschr. **11**: 633 (April 9) 1932.
9. In unpublished data from the Duke Hospital, in a series of nearly fifty cases of bromide poisoning there were only two cases presenting skin rashes. Both of these were atypical. Craven.[2]

IMMUNOTRANSFUSION IN UNDULANT FEVER

REPORT OF TWO CASES

S. M. CRESWELL, M.D., AND CARL E. WALLACE, B.S.
TACOMA, WASH.

The more prevalent use of immunotransfusion in the treatment of acute infectious diseases has been confined to the last decade. During this period transfusions of both specific and nonspecific immune blood have been reported with gratifying results. Gordon [1] has shown excellent results in the treatment of severe scarlet fever from the use of specific unaltered immune blood of convalescent patients. Stephenson [2] has reported success from the use of both unaltered and citrated nonspecific blood in the treatment of hemolytic streptococcus septicemia. Other writers have presented equally favorable reports concerning immunotransfusion in various types of septicemia.

Quevli and Nelsen [3] described favorable results following the use of whole unaltered blood transfusions in the treatment of undulant fever. As far as was known, the donors used for these transfusions had never had the disease but the results obtained were attributed to a probable passive immunity of the transfused blood. These physicians stated that in their opinion the ideal donor would be one who had recovered from undulant fever.

In the two cases reported here, an effort was made to discover donors with a high antibacterial immunity. In the selection of these donors, the opsonocytophagic index determination as applied by Huddleson, Johnson and Hamann [4] to Brucella infection was used. Briefly, the method described by Huddleson and his co-workers in determining the degree of immunity to Brucella is as follows:

From a prospective donor, 5 cc. of blood is collected in a test tube containing 0.2 cc. of a 20 per cent solution of sodium citrate in physiologic solution of sodium chloride. The test should be completed within an hour after withdrawal of the blood. Into a clean glass vial such as that used in the Kahn test are placed 0.1 cc. of the whole blood and 0.1 cc. of a Brucella suspension from a forty-eight hour liver agar slant. After thorough shaking, the vial is placed in an incubator at

From the Tacoma Department of Health and the Porro Biological Laboratories.

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2. Stephenson, Ruth: Nonspecific Immunotransfusions in Hemolytic Streptococcus Septicemia, J. A. M. A. **100**: 100 (Jan. 14) 1933.
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37 C. for thirty minutes. It is to be noted that the cells should not be resuspended after the period of incubation. A drop of the sedimented cells is removed by means of a finely drawn capillary pipet and placed at one end of a clean glass slide, then drawn out as in the usual blood smear. To prevent shrinkage of the leukocytes, the film should be dried as rapidly as possible. The slide is then stained with either Hasting's or Wright's stain. The ingested Brucella organisms are counted in each of twenty-five leukocytes from various sections of the spread.

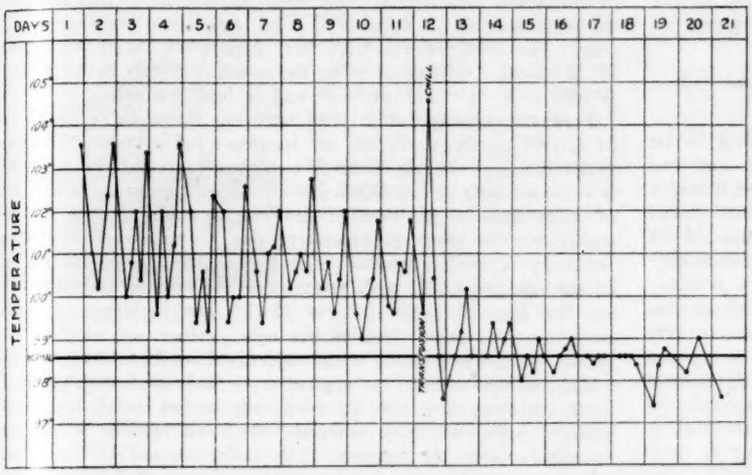

Chart 1 (case 1).—Temperature during course of illness.

Huddleson considers that the absence of ingested bacteria in the cells is indicative of a nonimmune person; that from one to twenty bacteria represents slight immunity; that from twenty-one to forty bacteria shows moderate immunity and that more than forty bacteria counted in each cell shows marked immunity. (It is suggested that any one wishing to perform this test refer to Huddleson's original article.)

The donors used in the two cases here reported both showed tests of high immunity. In both instances it was impossible to count the ingested bacteria, owing to the marked piling up of the organisms within the leukocytes.

CASE 1.—A veterinarian, aged 30, a patient of Dr. E. C. Yoder, became ill during the first week in October 1933. He had not had a recent illness but during the three preceding months had tested several herds of cattle for tuberculosis and contagious abortion. Also during this period he had attended a cow that had aborted and was compelled to remove a portion of the placenta which had been retained. About one month prior to his illness, some sores developed on his fingers which healed with difficulty.

The illness began with a generalized debility, fever, aching and sweating. These symptoms were followed by moderately severe headaches, chills and weakness. The sweating was particularly profuse at night. October 23 the leukocyte count was 6,400 and the differential count was 54 per cent polymorphonuclears, 40 per cent small lymphocytes and 6 per cent large lymphocytes. The agglutination test for undulant fever was positive in dilutions up to and including 1:160. October 27 the patient's leukocytes showed a very slight ingestion of Brucella organisms as indicated by the opsonocytophagic index test. At this time the agglutination test in the dilution of 1:320 was slightly positive. October 28 the patient was given a transfusion of 500 cc. of whole unaltered blood. The donor used was also a veterinarian whose blood possessed high opsonocytophagic power. Three hours after the transfusion a severe chill developed, followed by high fever. However, the patient began to show improvement on the following day and the temperature dropped to normal (chart 1). November 16, nineteen days after the transfusion, the agglutination test was positive in dilutions up to and including 1:1,280, and the ingestion of Brucella organisms in the leukocytes was marked. The patient has shown no recurrent symptoms.

CASE 2.—A civil engineer, aged 44, employed by the city of Tacoma, a patient of Dr. H. G. Willard, had had many hours of overtime work during a period of eight days following a flood, directing crews of men in opening up new drainage ditches. Much of the work was in the vicinity of a packing plant. Approximately fifty cattle had drowned in the flood area. During this time the patient became greatly fatigued and stated that he was wet most of the time. Three weeks later he became ill with a severe chill and a temperature of 104 F. After a two days rest he felt much improved and returned to work. Within three or four days he had another chill, followed by fever. He again quickly improved but continued to have repeated attacks at varied intervals.

It was not until March 1, 1934, two months after the initial chill, that he was seen by his physician. He complained of a left temporal headache, which had been more or less constant but was more severe during the attacks of chills and fever. He complained of pains in the joints, particularly the knees and ankles, with marked sweating, requiring a change of bedding three and four times each night. He was drowsy and could not remember incidents of recent date. Weakness was pronounced. By March 5 he was compelled to remain in bed continuously. On this date the leukocyte count was 8,100 with polymorphonuclears 66 per cent, small lymphocytes 28 per cent and large lymphocytes 6 per cent. The Widal test was negative for typhoid, para A and para B, in all dilutions. Agglutination for undulant fever was also negative at this time. There were no ova or parasites found in the stools. March 15 an intradermal skin test was made with 0.002 mg. of a fat free Brucella protein prepared according to the method of Levin.[5] A severe reaction was noted in twenty-four hours. The injected area was 6 cm. in diameter and was swollen and indurated.

March 19 the agglutination test was positive in all dilutions up to and including 1:320, and the leukocytes showed a low opsonocytophagic power. March 20 the patient was given a transfusion of 500 cc. of whole unaltered blood from a donor showing a high opsonocytophagic index. The temperature dropped in a few hours, as indicated in chart 2. The patient returned to work March 25, five days following the transfusion. At this time the leukocytes showed marked ingestion of Brucella bacteria. There has been no recurrence of symptoms.

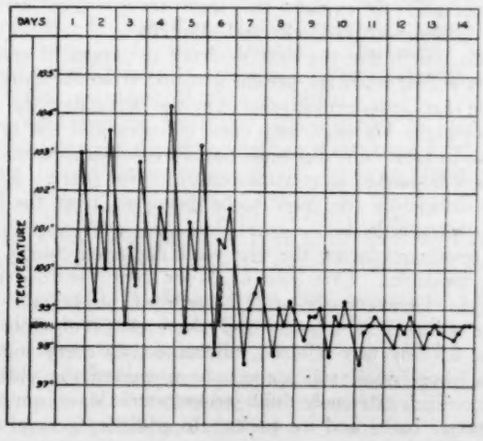

Chart 2 (case 2).—Temperature during course of illness.

COMMENT

The therapeutic response with immunotransfusion in the treatment of these cases, although there were only two, seems to be sufficiently striking for presentation. The results obtained are attributed to the selection of the proper donor by means of the opsonocytophagic index test. Whole unaltered blood was preferred in these transfusions in order to prevent any possibility of interference with the immune properties of the donor's blood.

5. Levin, William: The Intradermal Test as an Aid in the Diagnosis of Undulant Fever, J. Lab. & Clin. Med. 16:275 (Dec.) 1930.

CONCLUSIONS

1. Immunotransfusion in the treatment of undulant fever was a satisfactory method of treatment in the two cases here reported.

2. The opsonocytophagic test is a reliable index in the selection of immune donors.

3. The opsonocytophagic index paralleled the clinical condition of these two patients.

Medical Arts Building.

UNUSUAL CASE OF BARBITAL POISONING WITH RECOVERY

D. K. CHANG, M.D., AND M. L. TAINTER, M.D.
SAN FRANCISCO

The clinical fatal dose of barbital has been stated to be about 10 Gm. The toxic manifestations of overdosage are predominantly depression, with fall of blood pressure, increase or loss of reflexes and reduction in temperature and coma. The following case, from the private practice of one of us (D. K. C.), shows the possibility of recovery from a considerably larger dose, after a protracted period of coma. It illustrates an often overlooked fact that barbital may sometimes cause a marked febrile response rather than the classic depression of temperature.

L. M. S., a man, aged 22, Chinese, weighing 120 pounds (54 Kg.), being despondent over failure to pass examinations, swallowed thirty-six 7½ grain tablets of sodium barbital, a total dose of 270 grains (18 Gm.). He was found in deep coma twelve hours later and brought to the hospital. No vomiting had occurred, and the stomach was not evacuated, so the entire dose was retained.

When first seen, the reflexes were very sluggish, and the pupils were contracted and not reactive. Respiration was regular with a rate of 42 per minute, the pulse was 164, and the rectal temperature 102.8 F. During the next two days the temperature progressively increased to a maximum of 107.2 with a pulse rate of 200 and a respiratory rate of 54. At this time the systolic blood pressure was 90 mm. of mercury; the diastolic blood pressure could not be obtained. The temperature, pulse and respiration gradually decreased until the ninth day, when the temperature varied between 100 and 101 F., with a pulse of 95 and respiration of 24 per minute. During this period the lungs were clear. No septic process was detectable to explain the high fever. The urine was heavily loaded with red cells and albumin.

On the fourth day the first evidence of return of consciousness was noted, when the patient groaned from the insertion of a needle for hypodermoclysis. On the fifth day the patient began to move his head and open his eyes and the next day was able to talk. On the ninth day a bronchopneumonia developed, which caused a recrudescence of the fever. However, he was sufficiently recovered to be dismissed from the hospital on the thirty-fifth day.

The treatment during the first week consisted chiefly of supportive measures. One liter of 5 per cent dextrose solution was given intravenously and 2 liters of physiologic sodium chloride solution by hypodermoclysis, each twenty-four hours. Caffeine 0.5 Gm. was injected subcutaneously every four hours and camphor in oil subcutaneously whenever the pulse grew weaker. The extremely high temperature was combated by tepid sponge baths and ice packs. In addition, general nursing care, including frequent catheterization during the first week, was given as needed.

SUMMARY

A man of 120 pounds (54 Kg.) body weight survived a total dose of 18 Gm. (270 grains) of sodium barbital, taken with suicidal intent. The poisoning was characterized by a deep coma of six days' duration, a very high temperature and rapid pulse and respiration, in contrast to the usual picture of severe depression of temperature and respiration. Knowledge of the fact that this common depressant may produce stimulant responses in some cases should be of value in diagnosis and treatment of cases of barbital poisoning.

From the Department of Pharmacology, Stanford University School of Medicine.

USE OF MARINE SPONGE AS PRESSURE DRESSING FOR THYROIDECTOMY WOUNDS

WILLARD BARTLETT JR., M.D., AND ROBERT W. BARTLETT, M.D., ST. LOUIS

We have been so pleased with the result of the use of the marine sponge as a pressure dressing for thyroidectomy wounds that we take this opportunity of calling its advantages to the attention of those doing thyroid surgery. Since the popularization of the marine sponge as a means of applying pressure to skin flaps and to skin grafts by Vilray Blair and others, there must surely have been adaptation of this plan to the treatment of the superficial flaps raised in doing thyroidectomy; but such efforts have not, apparently, been recorded. H. M. Richter tells us of using the common rubber bath sponge, which serve the same purpose and is less expensive.

Personal communication with surgeons doing large numbers of thyroidectomies reveals an incidence of serum collection under the flaps varying from 50 to 90 per cent; the consequence is reflected in a recent publication commenting on an incidence of more than 60 per cent of draining incisions as late as the eighth to the tenth postoperative day. Our experience was formerly somewhat similar; even after abandoning infiltration of the operative field with procaine hydrochloride and developing the plan of cervical nerve block[1] our incidence of fluid collection was more than 50 per cent. Since we adopted the sponge pressure dressing it has decreased to about 10 per cent.

The sponge should be applied over only a few layers of gauze dressing and covered with only a few more layers of gauze. Adhesive tape, encircling the neck behind, is crossed anteriorly over the sponge. The latter should be reapplied whenever the dressing is changed for forty-eight hours after operation. If skin sutures and drains are removed in twenty-four hours after operation the wound will be found to be cleanly healed by the third or fourth day and no further dressing is necessary, as a rule.

410 Metropolitan Building.

1. Bartlett, Willard, and Bartlett, Willard, Jr.: Surg., Gynec. & Obst. 58: 737 (April) 1934.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT. HOWARD A. CARTER, Secretary.

WESTERN ELECTRIC AUDIPHONE ACCEPTABLE

Manufacturer: Western Electric Company, New York.

The Audiphone is an electrically operated, wearable hearing aid. The outfit consists essentially of a microphone, batteries, amplifier, and a bone or air conduction receiver. One type of unit for the less hard of hearing is not equipped with an amplifier.

The receiver employs an armature fixed to the contact surface and bipolar magnet of high efficiency. As the magnetic field fluctuates with the flow of current through the microphone, the inertia of the magnet causes the receiver to vibrate and the contact surface transmits the vibrations to the bones of the head. The vibrations are picked up directly by the cochlea of the inner ear, thus by-passing certain organs of hearing through which sound normally enters. In cases in which these organs have been impaired by illness or accident, the bone conduction receiver is of particular assistance. In other instances of impaired hearing it has the advantage of leaving the ear open to function together with the receiver. The bone conduction receiver transmits virtually the entire audible range of sound. It fits onto a tiny plug at the end of the transmission cord and can be used interchangeably with the air conduction type of receiver, which is of the conventional type.

The entire receiver weighs slightly over half an ounce and is 11/16 inch wide, 1 5/16 inches long, and a maximum of 9/16 inch deep. The case is made of phenol plastic material.

The power is obtained either from special hearing aid batteries available in four sizes or from three standard flashlight cells; for the latter, a battery case is available but it is not

part of the standard equipment. The hearing aid batteries, because of their larger size, give longer service per battery unit; but if the flashlight cells are changed when they depreciate below the recommended operating voltage, they are as efficient as the special batteries.

This unit was tested under actual conditions by an investigator selected by the Council, and it was found to be generally satisfactory. When the transmitter is worn under clothing, such as a suit, the firm claims that the loss of amplification amounts to about ten decibels. To obtain the best results, as is true of all hearing aids, this unit should be worn on the outside of the clothing.

Western Electric Audiphone.

When special hearing aid batteries are sold for hearing units, the Council believes that the battery terminals should be standardized so that a battery, no matter where purchased, will fit all makes of hearing aids. In the case of the Audiphone this has been done, and its battery terminals are those adopted by the Division of Simplified Practices, Department of Commerce, National Bureau of Standards. Furthermore, the Council believes that, when these devices are prescribed or sold, the company should permit the patient to try them and be certain that they will fit his specific type of deafness under the particular circumstances in which he is most desirous of aid.

In view of the results of the investigation of this unit, the Council voted to include the Western Electric Audiphone in its list of accepted devices.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

SCARLET FEVER STREPTOCOCCUS TOXIN (See New and Nonofficial Remedies, 1935, p. 391).

United States Standard Products Company, Woodworth, Wis.

Scarlet Fever Streptococcus Toxin for Immunization.

Prepared by the method of Drs. Dick under U. S. patent 1,547,369 (July 28, 1925; expires 1942) by license of the Scarlet Fever Committee Inc. Marketed in single immunization packages of five vials containing, respectively, 500, 2,000, 8,000, 25,000 and 80,000 skin test doses of toxin; also in ten immunization packages of six 10 cc. vials containing, respectively, 500, 2,000, 8,000, 25,000, 80,000 and 80,000 skin test doses of toxin per cubic centimeter.

SODIUM CACODYLATE (See New and Nonofficial Remedies, 1935, p. 88).

The following dosage forms have been accepted:

Cheplin's Sodium Cacodylate 0.05 Gm. (¾ grain), 1 cc.: Benzyl alcohol 1 per cent is added for its local anesthetic effect.
Prepared by the Cheplin Biological Laboratories, Inc., Syracuse, N. Y.

Cheplin's Sodium Cacodylate 0.1 Gm. (1½ grains), 1 cc.: Benzyl alcohol 1 per cent is added for its local anesthetic effect.
Prepared by the Cheplin Biological Laboratories, Inc., Syracuse, N. Y.

Cheplin's Sodium Cacodylate 0.2 Gm. (3 grains), 1 cc.: Benzyl alcohol 1 per cent is added for its local anesthetic effect.
Prepared by the Cheplin Biological Laboratories, Inc., Syracuse, N. Y.

Cheplin's Sodium Cacodylate 0.3 Gm. (5 grains), 1 cc.: Benzyl alcohol 1 per cent is added for its local anesthetic effect.
Prepared by the Cheplin Biological Laboratories, Inc., Syracuse, N. Y.

Cheplin's Sodium Cacodylate 0.5 Gm. (7½ grains), 1 cc.: Benzyl alcohol 1 per cent is added for its local anesthetic effect.
Prepared by the Cheplin Biological Laboratories, Inc., Syracuse, N. Y.

Cheplin's Sodium Cacodylate 1.0 Gm. (15½ grains), 2 cc.: Benzyl alcohol 1 per cent is added for its local anesthetic effect.
Prepared by the Cheplin Biological Laboratories, Inc., Syracuse, N. Y.

SODIUM CACODYLATE (See New and Nonofficial Remedies, 1935, p. 88).

The following dosage form has been accepted:

Ampoule Solution Sodium Cacodylate 0.19 Gm. (3 grains), 1 cc.
Prepared by the Lakeside Laboratories, Inc., Milwaukee.

Committee on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

FRANKLIN C. BING, Secretary.

CELLU BRAND VEGETABLE COMBINATION, WATER PACKED

Manufacturer.—The Chicago Dietetic Supply House, Inc., Chicago.

Description.—Canned yellow string beans, asparagus tips, artichoke hearts, okra and pimento, packed in water without added sugar or salt.

Manufacture.—Cellu canned yellow string beans and asparagus tips, artichoke hearts, okra and pimento are drained, packed in cans in specific proportions, boiling water is added and the cans are sealed and processed for a few minutes, but not long enough to soften, and cooled.

Analysis (submitted by manufacturer).—

	per cent
Moisture	95.6
Total solids	4.4
Ash	0.5
Fat (ether extract)	0.1
Protein (N × 6.25)	1.0
Crude fiber	0.5
Starch (diastase method)	1.8
Carbohydrates other than crude fiber (by difference)	0.5

Calories.—0.1 per gram; 3 per ounce.

Claims of Manufacturer.—Packed in water without added sugar or salt. For use in special diets in which sugar or salt is proscribed or in quantitative diets of calculated composition.

1. BONNIE BRAND HAWAIIAN PINEAPPLE CRUSHED, SLICED AND TIDBITS
2. BONNIE BRAND HAWAIIAN PINEAPPLE JUICE

Distributor.—United Fruit Stores, Inc., Providence, R. I.

Packer.—Hawaiian Pineapple Co., Ltd., San Francisco.

Description.—1. Canned pineapple packed in concentrated pineapple juice with added sucrose. The same as Dole Hawaiian canned pineapple products. (THE JOURNAL, April 8, 1933, p. 1106, and April 29, 1933, p. 1338).

2. Canned Hawaiian pineapple juice retaining in high degree the vitamin content; the same as Dole Hawaiian Finest Quality Pineapple Juice (Unsweetened) (THE JOURNAL, June 3, 1933, p. 1769).

1. TRUPAK PREMIUM BAKING CHOCOLATE
2. DAVIS BRAND COOKING CHOCOLATE

Distributors—(1) Haas Brothers, San Francisco. (2) The Davis Store, Chicago.

Packer.—Moffat, Inc., Boston.

Description.—Ground cacao nibs or "chocolate liquor" in cake form. Same as Moffat Cooking Chocolate, Unsweetened (THE JOURNAL, Jan. 20, 1934, p. 213).

Claims of Manufacturer.—Conforms to the United States Department of Agriculture definition and standards.

1. FORT HAMILTON BRAND TOMATO JUICE
2. WHITE BIRCH BRAND TOMATO JUICE

Distributors.—1. E. H. Frechtling Company, Hamilton, Ohio. 2. Carpenter Cook Company, Menominee, Ishpeming, Iron Mountain and Escanaba, Mich.

Packer.—Vincennes Packing Corporation, Vincennes, Ind.

Description.—Pasteurized tomato juice with added salt. Retains in high degree the vitamin content of the raw juice; the same as the accepted Alice of Old Vincennes Tomato Juice (THE JOURNAL, Feb. 20, 1932, p. 640).

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, APRIL 18, 1936

SCIENTIFIC DISCOVERIES AND PATENTS

The problem of medical patents has been agitating the medical profession increasingly in recent years. The "Principles of Medical Ethics" says quite plainly "It is unprofessional to receive remuneration from patents for surgical instruments or medicines; to accept rebates on prescriptions or surgical appliances, or perquisites from attendants who aid in the care of patients."

Through the centuries, medicine has given freely of its discoveries for the benefit of mankind. Vaccination against smallpox, inoculation against hydrophobia, digitalis, and innumerable other methods and medicaments became the property of all who cared to employ them in the control of disease. Now, as medicine has become more complex, involving technical assistants in the fields of biochemistry, physiology, physics and associated branches, great numbers of people who give their full time to the work of the hospital, the laboratory or the care of the sick work with the medical profession but are not bound by the same ethical principles. Moreover, the universities have developed preparations and technics in their laboratories at considerable expense to the institution, and workers have seen fit to turn over to the universities the control of such products. Thus insulin is controlled by the governors of the University of Toronto; scarlet fever preparations are controlled by the Scarlet Fever Committee, Inc.; vitamin D preparations by the Wisconsin Alumni Research Foundation of the University of Wisconsin; the Sperti patents by the University of Cincinnati; the Zucker patents by Columbia University; the Doisy patents are controlled by the St. Louis University School of Medicine, and several patents are the property of Stanford University and the University of California.

The American Association for the Advancement of Science published in 1934 a report on this subject with the arguments for and against commercialization of university patents. The problem continues to be studied by the National Research Council and by many other bodies. The question is one that has concerned the House of Delegates of the American Medical Association, and the Board of Trustees even now is engaged in a survey of the situation.

In the current issue of *Harpers Magazine,* George W. Gray[1] presents an interesting analysis of the present status of affairs as it concerns problems not only in the medical field but in science generally. He points out that separate patent-holding agencies were operating at the beginning of 1936 at the Universities of Cincinnati, Columbia, Cornell, Iowa State College, Lehigh, Pennsylvania State College, Purdue, Rutgers, Utah, Wisconsin, and Wittenberg College. Moreover, the state universities of Illinois and Minnesota, the California and Massachusetts Institutes of Technology, and the Franklin Institute of Philadelphia control either directly or by a committee patents contributed by research workers.

There seem to be three contrasting methods of financial control of university patents: (1) the method of the general holding company, (2) the method of the university holding company, and (3) the direct or committee method. Apparently these methods were established with the chief objective of protecting the public against substitutes and makeshifts. By means of the patent, the inventor can insure that whatever is offered to the public under his invention is technically right.

Mr. Gray feels that, when a new device involves the purity of a process or of ingredients, the public interest is best served by patenting. However, service of the public interest by insuring purity and quality of preparations is far different from commercial exploitation of the fruits of university research.

One of the most cogent arguments now advanced concerns the relationship of a university or research institution to taxation. Endowed universities and research institutions are usually exempt from taxation. They are nonprofit institutions. As an endowed institution, free from taxation, such institutions owe a definite duty to the public, which bears the burden of taxation. This is certainly a practical consideration which may well engage the authorities in the universities responsible for administration of commercially valuable patents.

Again, the exploitation of patents by various universities places them in direct competition with one another, as, for example, the three patents concerned with the development of vitamin D. Under such circumstances the results of current research are jealously guarded and all research probably delayed through failure of research workers to communicate with one another. Indeed, even workers in the same university develop a competitive spirit likely to destroy entirely the type of cooperation in science which is responsible for much of our current progress. This

1. Gray, G. W.: Science and Profits, Harpers Magazine **172**: 539 (April) 1936.

conception of scientific research is beautifully expressed by Mr. Gray in the following paragraph:

> Scientific research, as a recognized full-time occupation, is one of the youngest of the professions. It has come up out of the basements and garrets of the early experimenters, and has attained status among the most honored of the callings of man. Perhaps the laboratory is pressed with economic necessity—but is that warrant for changing its charter? Possibly it can support itself handsomely and independently—but can it survive the shiftings of bases and the readjustments of outlook which commercialization entails? One of its greatest glories is its intellectual integrity and independence—but can this reputation continue unsullied in the clash of competitive sales campaigns of patented commodities, infringement suits, and other contentions of the marketplace in which the financial interest of the research institution is on one side of the dispute?

A final consideration concerns the rights of the physician. When our civilization was such as to safeguard the physician, considering him as one who gave freely of his knowledge and service to mankind and therefore entitled to special consideration, physicians might well offer freely their time, their service, their original contributions. Our complex civilization of today places ever new burdens on a willing bearer of mankind's tribulations. Surely there was never a problem more complex offered for solution by the best minds of the medical profession.

OBITUARIES OF PHYSICIANS PUBLISHED IN 1935

The number of obituaries of physicians published in THE JOURNAL during 1935 totaled 3,491. The obituaries of 3,319 physicians of the United States were published as compared with 3,231 in 1934. The total number includes also 172 Canadian physicians, 4 in Hawaii, 2 each in Alaska, France, Philippine Islands and Puerto Rico, and 1 each in Africa, Bermuda, Cuba, England, Germany, India and Switzerland. The obituaries of 83 women physicians were published as compared with 73 in 1934. Graduates of medical schools in the United States for the fiscal year ended June 30, 1935, numbered 5,101. Deducting the number of physicians whose obituaries were published, there was a net addition of 1,782 for the year to the ranks of the profession.

Ages.—The average age at death of those classified as of the United States was 64.2, as compared with 64.3 in 1934. Two physicians lived to be 100 years old and 36 others lived to be 90 or more. Forty-six physicians died between the ages of 25 and 29, 58 between 30 and 34, 74 between 35 and 39, 114 between 40 and 44, 152 between 45 and 49, 254 between 50 and 54, 400 between 55 and 59, 510 between 60 and 64, 499 between 65 and 69, 455 between 70 and 74, 385 between 75 and 79, 225 between 80 and 84, and 109 between 85 and 90. More deaths occurred in January than in any other one month.

Causes of Death.—Heart disease was again the leading cause of death. Some contributory causes are included in the tabulation, as they have been in former years. For example, when a report of the cause of death was "chronic nephritis and heart disease," it was published so in THE JOURNAL and was recorded on the statistical charts under both diseases. Of the causes of death from heart disease, endocarditis or myocarditis was specified in 355 cases, coronary thrombosis in 220, angina pectoris in 146 and pericarditis in 2. Other diseases of the heart caused 622 deaths. Pneumonia was the second most frequent cause, lobar pneumonia being reported in 270 cases and bronchopneumonia in 90. Cerebral hemorrhage was the third most frequent cause, with 355 deaths; 20 additional deaths were reported as due to paralysis. Fourth on the list was arteriosclerosis with 318 deaths; other diseases of the arteries caused 4. Of 282 deaths reported as due to cancer, the stomach and liver were affected in 56 cases, the intestine in 33, the prostate in 30; in 163 cases the part affected was not specified. Nephritis caused 191 deaths, of which 22 cases were specified as acute nephritis. The number of cases in which embolism or thrombosis, exclusive of coronary thrombosis, was reported was 109; hypertension 84; diabetes and uremia 75 each; diseases of the genito-urinary system exclusive of nephritis, uremia and diseases of the prostate, 56; tuberculosis of the respiratory system 49; other forms of tuberculosis 4; diseases of the prostate 46; cirrhosis of the liver 40; other diseases of the liver 8; ulcer of the stomach 33; appendicitis 29; septicemia 28; influenza 27; senility and pulmonary edema 24 each; paralysis agitans, meningitis and leukemia 19 each; peritonitis 18; cholecystitis and hemorrhage 17 each; intestinal obstruction 16; other diseases of the digestive system 14; gangrene 15; arthritis 12; encephalitis 11; brain tumor 10; pernicious anemia 9, secondary anemia 2, aplastic anemia 1, other diseases of the blood 1; aneurysm and sclerosis 8 each; erysipelas 7; alcoholism, asthma, chronic bronchitis, biliary calculi and cerebromalacia 6 each; abscess, goiter, hernia and osteomyelitis 5 each; carbuncle, cellulitis cerebral edema, Hodgkin's disease, mastoiditis, pancreatitis and dementia paralytica 4 each; agranulocytic angina, brain abscess, pyemia and streptococcic infection 3 each; acidosis, amebic dysentery, empyema, malaria, myelitis, otitis media, peripheral neuritis, pellagra and sinus infection 2 each. Among other causes of death, each given in one case, were acute rheumatic fever, bacillary dysentery, Banti's disease, cerebral infarct, cholangeitis, congenital polycystic kidney, diverticulum of the esophagus, diverticulum of the colon, erythema multiforme, encephalomyelitis, epilepsy, Huntington's chorea, heat stroke, Ludwig's angina, morphine poisoning, multiple neuritis, phlebitis, pneumothorax, polycythemia vera, purpura haemorrhagica, rattlesnake bite, Raynaud's disease, rupture of the pancreas, ruptured esophageal varices, septic sore throat, syphilis, telangiectasis of the spinal cord, tetanus, teratoma of the testicle, tonsillitis, tularemia, and undulant fever.

Accidental Deaths.—One hundred and twenty physicians died as the result of accidents in 1935 compared with 141 in the previous year. Automobile accidents accounted for 71 deaths, 2 more than in 1934. In 1935 deaths from falls numbered 19; burns 6; drowning 5; carbon monoxide poisoning 4; x-ray burns and shooting 3; overdose of medicine 2. One died in the Florida hurricane. One was overcome by gas, 1 was suffocated in a fire, 1 struck by lightning, 1 died of a broken neck from diving into shallow water. In the remaining cases in this group the nature of the accident was not specified.

Suicides and Homicides.—Suicide was the cause of 47 deaths in 1935, 28 less than in 1934. Shooting accounted for 21 of these deaths; poison for 12; drowning 5; hanging, stabbing and jumping 2 each; incised artery 1, and in the remaining cases the method was not reported. There were 5 homicides.

Positions.—Among the decedents were 196 who were or had been teachers in medical schools, 407 who served in the World War, 28 veterans of the Civil War, and 45 veterans of the Spanish-American War. One hundred and forty-one had been health officers, 101 members of boards of education, 56 members of boards of health and 24 members of state boards of medical examiners. There were 47 members of state legislatures, 45 mayors, 40 coroners, 25 bank presidents, 15 members of city councils, 14 editors, 10 dentists, 10 police surgeons, 9 missionaries, 7 lawyers, 7 clergymen, 3 postmasters, 2 justices of the peace, and 1 congressman. There were 18 members of the U. S. Army Medical Corps, 11 of the U. S. Navy Medical Corps and 11 of the U. S. Public Health Service.

Association Officers.—Obituaries of physicians who were or had been officers of the American Medical Association included 2 past presidents, 2 vice presidents, 12 section officers and 2 members of councils. Thirty-two members or former members of the House of Delegates died during the year. Thirty-seven presidents or former presidents and two secretaries of state societies were included among the officials.

CONTROL OF SYPHILIS AS THE NEXT PUBLIC HEALTH OBJECTIVE

The conquest of syphilis is the next great objective in public health. In spite of the difficulties of compiling statistics on syphilis, sufficient reliable information indicates that it is probably the most prevalent of communicable diseases except for measles in epidemic years. Public health officials have been directing more and more efforts toward the control of syphilis through providing laboratory services for diagnosis, free diagnostic stations and aid through clinics, and free drugs to be used by private physicians in the treatment of the indigent, at least to a noncontagious stage. Recent medical literature has seen the publication of carefully considered studies in standard procedures of treatment. Four of these cooperative clinical studies [1] which have been printed in THE JOURNAL and one taken in part from *Venereal Disease Information*,[2] the monthly bulletin of the United States Public Health Service devoted to this topic, have been combined in a manual of information for physicians.[3]

One of the principal obstacles to the conquest of syphilis has been public squeamishness about facing the problem and the unfortunate classification of syphilis as a venereal disease. It is, of course, a venereal disease only in part. It is principally a communicable disease in the broadest sense. As such it must be handled as other communicable diseases are controlled, and discussed with equal frankness. Magazines, newspapers and the radio have been reluctant even to use the word "syphilis." This is a reflection of a popular state of mind which must be altered by educational efforts. There are signs even now of a more liberal attitude. Newspapers are beginning to use the word in headlines; at least a dozen local radio stations of major importance have featured medical broadcasts on the subject;[4] numerous smaller radio stations, especially in New York State, have broadcast transcriptions dealing with syphilis [5] furnished by the health department of the state of New York. When we have placed syphilis in the light we shall have taken the first step toward its conquest.

The history of medical progress shows instance after instance in which the combined forces of medicine and public health have conquered disease as far as public cooperation could be procured. Diphtheria persists only by virtue of incomplete application of preventive measures which have been stressed by physicians and public health workers; smallpox can be extirpated at any time when vaccination becomes universal; typhoid is conquerable by a combination of sanitary engineering and applied immunology whenever these measures are adequately invoked. A greater menace than all of these is syphilis, yet our knowledge is ample for its successful control. With the combined efforts of physicians, public health officials, educators and the public, syphilis can be conquered next.

1. Stokes, J. H.; Cole, H. N.; Moore, J. E.; O'Leary, P. A.; Wile, U. J.; Parran, Thomas, Jr.; Vonderlehr, R. A., and Usilton, Lida J.: Standard Treatment Procedure in Early Syphilis, J. A. M. A. **102**: 1267 (April 21) 1934. League of Nations Investigation and Report on Treatment of Early Syphilis by the Committee of Experts on Syphilis and Cognate Subjects, Zurich, Nov. 21-23, 1934, ibid. **104**: 1329 (April 13) 1935. Cole, H. N.; Usilton, Lida J.; Moore, J. E.; O'Leary, P. A.; Stokes, J. H.; Wile, U. J.; Parran, Thomas, Jr., and Vonderlehr, R. A.: Cooperative Clinical Studies in the Treatment of Syphilis: Syphilis in Pregnancy, ibid. **106**: 464 (Feb. 8) 1936. Vonderlehr, R. A. Bundesen, H. N.; Moore, J. E.; Nelson, N. A.; Pelouze, P. S.; Snow, W. F.; Stokes, J. H.; Wile, U. J., and Usilton, Lida J.: Recommendations for a Venereal Disease Control Program in State and Local Health Departments, ibid. **106**: 115 (Jan. 11) 1936.

2. Moore, J. E.; Cole, H. N.; O'Leary, P. A.; Stokes, J. H.; Wile, U. J.; Clark. Talliaferro; Parran, Thomas, Jr., and Usilton, Lida J.: Cooperative Clinical Studies in the Treatment of Syphilis: The Treatment of Latent Syphilis, Ven. Dis. Inform. **13**: 317 (Aug.), 351 (Sept.), 371 (Oct.), 389 (Nov.), 407 (Dec.) 1932.

3. A Manual of Information for Physicians on the Treatment of Syphilis and the Control of Venereal Disease, Chicago, American Medical Association, 1936, 10 cents.

4. Unpublished communications to the Bureau of Health and Public Instruction, A. M. A.

5. Health Hunters Broadcasts Cited for Exceptional Merit, Health News, New York State Department of Health, Albany, N. Y., June 10, 1935, p. 92.

Current Comment

INFECTIOUS ANEMIA OF HORSES

A question has arisen recently as to the possibility of the transmission to man of infectious anemia of horses (swamp fever) by the administration of serums or antitoxins derived from the horse. As far as can be ascertained, transmission to man in this way has not occurred in this country or elsewhere, but two apparently authentic cases have been reported of infection in human beings after direct contact with the disease in horses. Luhrs,[1] a German veterinarian working with infected horses during the war, developed febrile symptoms, diarrhea, pain in the kidneys and signs of anemia. For three years his blood and filtered serum each produced symptoms of infectious anemia on inoculation into horses. Later, Peters[2] described a case of severe anemia (2,000,000 erythrocytes) in a patient after exposure to horses ill with infectious anemia, other symptoms being diarrhea, headache, a herpetiform eruption, occasional elevations of temperature, lumbar pain and general debility. A horse injected with the patient's blood and two horses injected with filtered serum in each case developed symptoms of infectious anemia and died. The disease in horses has a wide geographic distribution throughout the world and has occurred in a number of states in this country. It is insidious in its spread and, especially since horses may carry the virus without obvious symptoms of illness, it is possible that infected animals may gain entrance into establishments producing biologic products for human use, despite precautions that are or could be taken. If human cases presenting suggestive symptoms following the administration of serum or antitoxin are observed, the possibility of infection with the virus of infectious anemia should be considered. Apparently the only satisfactory confirmatory test would be the inoculation of a susceptible horse, as was done in the two cases mentioned.

1. Luhrs: Ztschr. f. Vet.-kunde. **32**: 89, 1920.
2. Peters: Presse méd. **32**: 105, 1924.

Association News

RAILROAD TICKETS TO THE KANSAS CITY SESSION OF THE AMERICAN MEDICAL ASSOCIATION, MAY 11-15

When you purchase your ticket to the Kansas City meeting of the American Medical Association, May 11-15, be sure to ask your railroad ticket agent for a certificate, which, when properly certified to and validated will entitle you to purchase a return ticket to your home over the same route traveled to Kansas City, at one-third the fare paid to Kansas City. No refund of fare will be made on account of failure to present a validated certificate when purchasing return ticket. For additional details about transportation to Kansas City see The JOURNAL of the American Medical Association of April 11, 1936, page 1281.

THE KANSAS CITY SESSION

American Branch of International League Against Epilepsy

A dinner meeting to organize the American Branch of the International League Against Epilepsy, and to discuss the investigation of epilepsy, will be held at the Hotel Muehlebach, Tuesday evening, May 12, at 6:30. Those who wish to attend please inform the exhibitor in booth 673 before Tuesday noon.

APPLICATIONS FOR GRANTS FROM COMMITTEE ON SCIENTIFIC RESEARCH

The Committee on Scientific Research of the American Medical Association invites applications for grants of money to aid in research on problems bearing more or less directly on clinical medicine. Preference is given to requests for moderate amounts to meet specific needs. For application forms and further information, address the committee at 535 North Dearborn Street, Chicago.

DISTINGUISHED GUESTS AT THE KANSAS CITY SESSION

The general scientific meetings at the Kansas City session present this year two distinguished guests from abroad who will, no doubt, be greeted with great interest by American physicians. Lord Horder has been physician in ordinary to the prince of Wales, now king of England, since 1923. He is a graduate of the University of London and of St. Bartholomew's Hospital, consulting physician to the Cancer Hospital, ex-president of the Harveian Society of London, president of the National Birth Control Association and consulting physician to numerous other organizations in both the medical and public welfare fields. He has interested himself particularly in recreation, physical training, eugenics, child guidance, the antinoise movement and the cremation society. He is known also for his contributions to medical investigation and is the author of "Clinical Pathology in Practice," "Cerebrospinal Fever," "Medical Notes," "The Essentials of Medical Diagnosis" and similar works. He will address the assembly at the annual session in Kansas City on thyrotoxicosis.

LORD HORDER

Dr. Afranio do Amaral of Brazil is head of the Institute at Butantan near São Paulo. Dr. Amaral is a graduate of Harvard and has for years been recognized as among the leading authorities in the world on snake poisons and antivenins. The Antivenin Institute, which is a part of the Butantan Institute, is known throughout the world. The institute is equally known

DR. AFRANIO DO AMARAL (seated) extracting poison from a rattlesnake.

for its investigation in the fields of spotted fever and of Rickettsia. It has charge of the preparation and development of most of the biologic preparations used in Brazil. Dr. Amaral will speak at Kansas City on snake poisons. In the illustration he appears on the right, extracting the poison from a rattler.

BROADCASTS FROM THE KANSAS CITY SESSION

Special radio programs will be broadcast from Kansas City during the week of the annual session.

NATIONAL BROADCASTING COMPANY

The following programs will be delivered over a network of the National Broadcasting Company:

May 11, 4:30 p. m.: "Nutrition and the Future of Man," by Dr. James S. McLester, President of the American Medical Association. Fifteen minutes.

May 12, 4 p. m.: Medicine Marching Forward. The regular dramatized program Your Health (originating in Chicago), based on papers or exhibits presented at the convention. Thirty minutes.

May 13, 12 noon: An interview about the Scientific Exhibit with Dr. Morris Fishbein. Fifteen minutes.

COLUMBIA BROADCASTING SYSTEM

The following programs will be broadcast over a network of the Columbia Broadcasting System:

May 11, 1:30 p. m.: An interview with one or more distinguished foreign visitors by Dr. Morris Fishbein. Subject to be announced. Fifteen minutes.

May 15, 2 p. m.: A news broadcast outlining the main events of the convention. Dr. W. W. Bauer. Fifteen minutes.

May 15, 8:45 p. m.: Medicine Yesterday and Today. A dramatized program (originating in Chicago), based on papers or exhibits presented at the convention. Thirty minutes.

The hour given is central standard time; eastern standard time is one hour later, mountain time one hour earlier, and Pacific time two hours earlier.

RADIO BROADCASTS

The American Medical Association broadcasts over WEAF, the Red network instead of the Blue, as formerly, and certain additional stations of the National Broadcasting Company at 5 p. m. eastern standard time (4 o'clock central standard time, 3 o'clock mountain time, 2 o'clock Pacific time) each Tuesday, presenting a dramatized program with incidental music under the general theme of "Medical Emergencies and How They Are Met." The title of the program is "Your Health." The program is recognizable by a musical salutation through which the voice of the announcer offers the toast "Ladies and gentlemen, your health!" The theme of the program is repeated each week in the opening announcement, which informs the listener that the same medical knowledge and the same doctors that are mobilized for the meeting of grave medical emergencies are available in every community, day and night, for the promotion of the health of the people. Each program will include a brief talk dealing with the central theme of the individual broadcast.

Red Network.—The stations on the Red network of the National Broadcasting Company are WEAF, WEEI, WTIC, WJAR, WTAG, WCSH, KYW, WFBR, WRC, WGY, WBEN, WCAE, WTAM, WWJ, WMAQ, KSD, WHO, WOW, WDAF.

Pacific Network.—The stations on the Pacific network are KGO, KPO, KFI, KGW, KOMO, KHQ, KFSD, KTAR.

Network programs are broadcast locally or omitted at the discretion of the local station. The lists indicate stations to which programs are available.

The next three programs are as follows:

April 21. Health and the School, Morrjs Fishbein, M.D.
April 28. Infant Care, W. W. Bauer, M.D.
May 5. Maternal Care, W. W. Bauer, M.D.

ANNUAL CONGRESS ON MEDICAL EDUCATION, MEDICAL LICENSURE AND HOSPITALS

Thirty-Second Annual Meeting, held in Chicago, Feb. 17 and 18, 1936

(Continued from page 1319)

DR. IRVIN D. METZGER, Pittsburgh, in the Chair

THE FEDERATION OF STATE MEDICAL BOARDS

FEBRUARY 18—MORNING

The Federation and the Survey of Medical Schools

DR. WILLIAM D. CUTTER, Chicago: I am able to make a partial, incomplete report on some phases of the survey of medical schools that has been going forward now for about a year and a half. The actual visitation of the schools will probably be completed by the first of June. In carrying out this survey, we have relied on two essentially different and yet complementary methods. The first step in our investigation of a medical school is to send forms asking for information regarding the organization and teaching methods and facilities of the different departments of the institution, also for a brief personal history of the members of the faculty who carry on a substantial part of the teaching program. These forms have been filled out by all the schools to which they have been sent and returned to us. However, in spite of our best efforts to make the meaning of these questions clear, some of them are misunderstood, some of them may be slighted, some of them may be inaccurate, and it requires a personal visit to the school and a conversation with the men who have completed these forms to complete and round out the entire picture. We were able to borrow from the University of Syracuse the services of Dr. Weiskotten, who has been dean of that school, professor of pathology there for a long time and is a keen student of medical education. Dr. Weiskotten has made every one of these visits so far. At all times he is accompanied by some one else, a representative of this federation, a representative of the college association, sometimes another member of the Council or some one selected by us to go with him. That gives added importance to the visit, because we are not relying on the observations of a single individual but have in every case the observations of two individuals. The observations made

by these visitors are dictated by Dr. Weiskotten every night, and the notes are filed in our office, so that we have a written record, fresh, first hand, to supplement the questionnaire forms which have been submitted as a basis for our permanent and more elaborate study of the schools. So much for the method of the survey.

The first thing that came forcibly to our attention when we began this work was that probably the most important single factor in the character of the work being done in the medical school is the character of the student body. This is along the line of what your president told you last night and what Dr. McLester said yesterday afternoon. The most important factor in the quality of the work done by the medical school is the personal qualification, ability, industry, zeal of the medical student himself, so that the most important part of the school lies in the selection of medical students. For ten years there have been more applicants for admission to medical schools than could be received, and the schools have been in a position in which they were more or less compelled to make a selection. The evidence that the dean or the admissions committee has on which to make a selection is, of course, not as complete as we would like to have it. Unhappily, we have not yet discovered any exact means of measuring the personal traits that are all-important in determining the success and the usefulness of a physician, but we do have before us the student's academic standing in college, and that serves as one piece of evidence. Lately we have introduced the aptitude test, which brings in another factor in measuring the qualifications of these students. We do not yet know just how much importance we should attach to the aptitude test. Some schools rely a good deal on personal interviews with their candidates. Other schools are less confident. Not all of the schools are dealing with this matter as successfully as we would like. Some of them are a little lax in selecting the last half of their class. Doubtless financial pressure has something to do with it.

I want to make it clear that the Council, in undertaking this survey, has not started out with the idea that it was going to reduce the number of medical students. We are not primarily concerned with the number of medical students or the number of men in the medical profession. Our job is to formulate standards of medical education, and if the formulation and enforcement of proper standards should reduce the number of medical students, it must be accepted as an inevitable consequence, just as it was twenty-five years ago. On the other hand, if the formulation of proper standards should lead to an increase in the number of medical students, that, again, is not our concern. We are concerned with the formulation and application of proper standards of selection and proper methods of teaching.

During recent years, probably owing to the period of depression, a good many schools have allowed themselves to yield to the demands of this increasing number of applicants and to take in larger numbers of students than they have been able to care for properly. In some cases their laboratories are overcrowded. In some cases they have to run two or three successive sections, multiplying the teaching load of their instructional staff. Most of the schools in which this condition has been found have expressed their readiness to cooperate with us by reducing the size of their student body. But please get it in your minds that the purpose of this survey is not the reduction of students but the preparation of better trained and better qualified physicians.

Another feature that stands out in our survey so far is that the teaching of the clinical subjects has not advanced as satisfactorily as the teaching of the laboratory subjects. We have found that the older, purely didactic methods of teaching, by lectures or large clinical demonstrations, have persisted to an extent that is not in conformity with the best methods of teaching at the present day. We believe that the only way one can teach a man to examine a patient is by having him examine the patient. The actual teaching, the backbone of the teaching of medicine, surgery, obstetrics and pediatrics, must be through personal application by the student to the examination of the patient of the methods that he has been taught, under close supervision, so that his work is immediately checked and corrected and so that he learns each day to do the work better and better. That kind of teaching takes time. It takes an abundance of clinical material. One of the weaknesses that has been generally manifested has been the failure to develop that kind of teaching. This is manifested in an important way in obstetrics. Ever since the Council formulated its first standards for medical schools, it has specified that each student should personally conduct a number of labor cases under supervision. We find that that standard is being honored in the breach more than in the observance. There is some difference of opinion. There are those who believe that obstetrics has become a specialty comparable with eye, ear, nose and throat work, with major surgical work, and that the graduate in medicine, even after the completion of an intern year, ought not to be expected to do obstetrics and therefore they make the subject elective. This is a question of social philosophy. If the philosophy that has prevailed up to the present time is correct, we have got to ask some of these schools to be a little bit more particular in carrying out this particular requirement.

There is one other feature. A medical school cannot be run without money, and, especially during these hard times, some of the schools have been severely pressed. Some of them have had to cut salaries. They have had to diminish the size of their staff. We feel that those cuts should be made in other divisions of the school. I believe we are justified in asking these schools, whatever else they may do, not to cut down on anything that has to do with the training of physicians.

The Two Year Medical School

DR. G. M. WILLIAMSON, Grand Forks, N. D.: Twenty-five or thirty years ago these groups meeting today favored the idea of two year medical schools. The incomplete schools were not only welcomed but enjoyed high rating from the start and with minor exceptions they have held that rating until this time. It sems to me that fair and unbiased recognition should be given to any incomplete school that is doing satisfactory work. The chief argument against the two year schools at this time seems to be that they are unable to make the necessary correlation between the laboratory and the clinical work and that newer and better ideas of medical education do not approve of the handling of courses considered good practice some twenty-five years ago. Probably the best correlation of all is done by the wise teacher and has little or no relation to elaborate provision or organization. I am sure that it is the experience both of students who began their training in the incomplete schools and of the schools themselves that transfer students are in general at no disadvantage whatever. It is the experience of North Dakota students and of the clinical schools to which they have gone that they find no difficulties in making adjustments. It is sometimes questioned whether students who complete two years of work in an incomplete school are able to transfer or find opportunities to continue their studies. It is of course true that the continuation of any two year school depends not only on its being able to give satisfactory instruction but on the ability of complete schools to accept its students. It is the experience of the school in my state, and I think this is typical, that no student who should at all be encouraged to go on has failed to find an opportunity to do so. The two year schools are small schools or should be. Their students finishing in medicine are a little more likely to go into general practice and into the more rural parts of the country than are students that come from the more congested centers. These schools are in a favorable position to know of aptitudes, attitudes and other elements of personality and character that should be taken into consideration in selecting students. The intimate contacts of teacher and student operate to many advantages. The fact that a transfer must be made in order to complete the training is at once a challenge to good work felt by both instructor and student. Only one student who has finished the curriculum at the University of North Dakota with the graduation average has so far failed to find an opportunity to go on. Of forty-five students that transferred to Rush in the few years just preceding 1934, twenty-two had made slightly higher average grades than they had made here, nine had exactly the same averages, and fourteen had dropped slightly. Of thirty-nine North Dakota students transferred to Northwestern from 1927 to 1934, one died and thirty-eight have graduated there or are in the present graduating class. Of the thirty-eight, three finished or graduated there in the upper one tenth of their respective classes, thirteen in the upper one fourth and twenty-eight, or nearly

75 per cent, in the upper one half. The six students who transferred to Pennsylvania from 1923 to 1933 made the second highest group average in the work of the third and fourth years. (The highest group average was made by the students transferring from Utah, the second by those from North Dakota, the third by those from other complete or four year schools, the fourth by the large group of Pennsylvania's own students.) After completing two years of medical training, students in acceptable schools are eligible to write on part 1 of the National Board examination. Thirty-eight have passed in all subjects at once; eight have made partial failures, but most of these have rewritten the subjects in which they were low and received the certificate later in accordance with the rules of the National Board; four have failed. It seems to me that the University of North Dakota School of Medicine, and the same is true for the other two year schools, is needed for several reasons. In this argument for continuation of the two year school in the Middle West, I believe that the Council directing medical education should seriously consider conditions existing in sparsely populated parts of our country. A careful survey of medical education should include not only all the schools that have to do with regular medicine but all schools or efforts of any kind that pretend to train men for any form of the so-called healing arts. If it is deemed necessary to limit or to reduce the number of men entering the profession, a better way for all concerned than to eliminate the two year schools or to make unreasonable demands on them would seem to be to prorate the number of admissions each school should accept, or to advance the requirements for entrance, or both. In prorating or limiting admissions, consideration should of course be given to both the facilities of a school and its location and the reasonable service that it might be expected to perform for either a limited or a wider territory. If requirements are to be increased, it would seem that the added requirements should be in the way of quality of the work done rather than in any total or specific quantity.

DR. BENJAMIN J. LAWRENCE, Raleigh, N. C.: I believe, and most of the influential physicians in my state believe, that there is a definite place in American medical education for the two year medical schools. I believe that the presence of the two year medical schools is sound in theory and in practice. The medical course today and as administered throughout this country is long and arduous. Most boys graduate from college young and it is a decided advantage to many of these youths if they can remain at their original college of liberal arts or at their own university for an additional two years, during which time their characters become more mature and better rounded. They are closer home in many instances. There is another important phase to be mentioned. In these two year medical schools the student comes in contact with the faculty in a close relationship. The influence of the professor plays an important part in shaping the lives and future of these young men entering the medical profession. This is not feasible in the great universities. What a blow to our profession it would have been had we not had on the lives of their students the influence of such men as Gross, the elder Da Costa, D. Hayes Agnew, Joseph Leidy, Marion Sims, Murphy and Nicholas Senn. Medical schools were relatively small when these men were developing. The teachers in the two year schools in North Carolina have played a tremendous part in shaping the destiny of the profession in our state. Such is not the case in an overcrowded school of several thousand students. Many of the finest doctors the world has produced came from humble parentage. These stalwart individuals fought their way up and obtained admission into a medical school. The people of my state feel that the medical course is long enough and that it is already too expensive. It taxes the physical strength and frequently exhausts the financial ability of the student and of his family. Had it not been for the two year medical schools in North Carolina many of the leading doctors in North Carolina would never have had the opportunity to enter on their career. We beg of you to allow these two year schools to remain for the benefit of the people in the rural districts who need their product and for the benefit of the student who is most worthy in every particular and yet whose financial condition is very limited. These boys enter the junior classes of the best four year medical schools in the world. They stand shoulder to shoulder with the men who took their first two years at the great four year medical schools. They are not inferior in character or in scholastic standing and they make as good doctors as ever practiced. The medical profession needs the two year schools because it needs the fine type of manhood grown under rugged circumstances. Society needs the two year medical schools. Doctors are concentrating in large cities, but in many instances the rural districts are actually in need of doctors. My state is a rural state. We have had our two year schools for thirty years or more. Of more than 2,000 doctors in North Carolina, about 1,600 active today, nearly all took their training at one of the two schools which now offer just two years in medicine. Any ruling that would seriously handicap these institutions would arouse organized medicine in our state. We have demonstrated for half a century that we can control the supply of doctors in North Carolina and we believe in keeping the standard high.

DISCUSSION

DR. EDWARD A. KNOWLTON, Holyoke, Mass.: I should like to ask the speakers whether there is any great percentage of students in these two year schools who have been refused admission to the four year schools. I ask that with the idea that the number of applicants to the larger schools exceeds those they take in, ten to one. I wondered whether there were many going to the two year schools who have previously been refused admission to the larger four year schools.

DR. H. E. FRENCH, Grand Forks, N. D.: I think probably I can answer that. We have a great many applications from the class you speak of. We do not take them. Our students are practically all from our own state. We probably have some from some western state where there are no medical schools.

DR. KNOWLTON: I wanted to find out whether many of these two year students had already applied for admission to a four year school and been refused admission.

DR. THOMAS J. CROWE, Dallas, Texas: After hearing the young man from North Carolina, it seems to me that he is justified in everything he said with reference to the first two years in medicine, unless pathology and technical subjects are carried over into the third and fourth year. I find that the universities are not giving the men enough fundamentals in the first two years. I am speaking now of the academic institutions.

DR. ERWIN SCHENK, Des Moines, Iowa: There is such a thing as unfitting a doctor for certain types of practice. He can be kept in college so long, in clinical work so long, in laboratories so long and in hospitals so long that he will not go into the rural areas. Even in Iowa there are rural districts that are insufficiently supplied with medical talent. I think they have a peculiar condition of their own, and I do not think that any group should arbitrarily determine what they are to have and what they are not to have. I do wonder, however, what preliminary qualifications they expect. Nobody has discussed that.

DR. E. H. KLOMAN, Baltimore: I am not especially interested in any of the two year schools, but my belief is that they have a much better selection of students than the big colleges have. Secondly, I think the personal touch which they have is much greater and they turn out men who have been in personal touch with the teachers to a much greater extent than in the larger schools.

DR. FRANK M. FULLER, Keokuk, Iowa: In our observations of progress in medical education, we do not give proper consideration to past development. I was connected with a school which went out of existence. That school was established in Iowa, the first school ever established west of the Mississippi River, in 1849. That school went on successfully to 1908; then it could not meet the demands of medical education and it merged with Drake University. Then, because the city of Des Moines could not handle the job, it merged into the great University of Iowa College of Medicine. In 1927, nineteen years after the Keokuk Medical College closed its doors, there was a gathering of some of the graduates of that school at Iowa City. I said to those men "Why do you want to come back twenty-five years after your alma mater has closed its doors?" They told me over and over again "We want to come back because we appreciate the personal effort that the faculty

of Keokuk Medical College made to start us." These small schools have a place. That school provided the great western growing country with excellent, capable, competent men, who have risen to high places in the profession. These two year schools may be doing the same thing today.

DR. GEORGE M. WILLIAMSON, Grand Forks, N. D.: I want to correct my friend from Iowa. In a school established in North Dakota thirty years ago a requirement for admission was two years of college work. I doubt that you had that in your schools in Iowa at that time.

DR. BENJAMIN J. LAWRENCE, Raleigh, N. C.: That reminds me that the distinguished John Farrell, who is now with the Rockefeller Institute, came from one of these small and insignificant schools.

Comments on National Board Examinations

DR. J. STEWART RODMAN and EVERETT S. ELWOOD, Philadelphia: The National Board of Medical Examiners has just completed its second decade. The fifteen original members laid the foundations of this undertaking with care. They sought and secured the approval of the House of Delegates of the American Medical Association. The Secretaries of War, the Navy and the Treasury authorized their respective surgeon generals to participate in the board's activities. The Federation of State Medical Boards endorsed the plan, and its leaders gave freely of advice and valuable assistance. The deans of the medical colleges and many of their department heads contributed the scientific guidance which determined the nature and scope of the examinations. Exchange visits by committees of the examining boards of England and Scotland and of the National Board of Medical Examiners were made, with the result that the young board in this country had the great benefit of the advice and experience of these distinguished overseas boards, which have been conducting national medical examinations for a century and a half.

Four of the organizations mentioned—the Council, the federation, the Association of American Medical Colleges and the federal services—have from two to six representatives each in the membership of the National Board. Medical training has undergone changes and an elevation of standards during the past twenty years. These have made it possible for a comprehensive medical examination on a nation-wide basis to be of service to medical education in ways not contemplated when the National Board was organized. Some of the medical colleges in this country introduced the comprehensive examination, and its use in this field has been growing. Perhaps owing in part to its newness and in part to lack of a full understanding of its purpose, this type of examination has in some instances failed to be a real test of the student's mastery of a major division of medical study. A satisfactory definition of the comprehensive final examination as given by Prof. Edward S. Jones of the University of Buffalo is "any examination of a college student covering subject-matter greater in scope than a single course." The examinations of the National Board of Medical Examiners and those of the state medical examining boards are referred to by Dr. Jones as final comprehensive examinations. He demonstrates conclusively, however, that a real comprehensive examination must be more than a factual test of memorized details. The National Board is earnestly striving to give a broad comprehensive examination. Many of its questions begin with the word discuss. It is an examination by outside examiners, all of whom are prominent members of the faculties of medical schools.

In addition to the written examinations, part I and part II, the three-day practical and clinical oral examinations, part III, affords an opportunity to try out the young physician in action. Here he is given patients to study and laboratory problems to solve which are similar to those he will meet in actual practice. In the division of clinical medicine of part III, for example, he studies the patients assigned to him, takes a history of the so-called long case, and makes his diagnosis and prognosis. Then two examiners—one asking questions, the other appraising the answers—thoroughly discuss the case with the candidate, not only as to his conclusions but also as to the reasons for these and his estimate of the various factors involved. A distinct effort is made to "clinicalize" the examinations so far as possible. Even the examinations in physiology, biochemistry and pharmacology are conducted at the bedside when suitable cases are available.

The six main divisions of part III are subdivided, and the grade in a main division is made up of the grades attained in its subdivisions. A candidate passes this part if the average of his grades in the main divisions is 75 per cent or more. Recently the board has adopted the rule that grades below 60 per cent in any of the subdivisions are not acceptable if the grade for the corresponding main division is under 75 per cent. In such cases the candidate is "referred" in this subdivision and required after a three months interval to pass a reexamination. This regulation is proving satisfactory. The National Board examinations, the board believes, might properly be called a barometer of medical education. When a representative number of students from any one school pass the National Board's examinations year after year with a degree of success higher than the average for the whole group taking the examination, it is fair to conclude that such results indicate that these students have received a medical training equal to the best given in this country today.

A number of medical schools are making a study of the results which their students attain in the National Board's examinations. The printed reports of the examinations, which carry the individual records by identification numbers only, are sent to schools that so request. The identification numbers of the students at the schools receiving the report are checked to indicate which were their students in the examination. The reports enable them to determine how the students at their school passed in comparison with the group as a whole. It also enables them to determine how their students handle each subject in the examination in comparison with the group as a whole and in comparison with the success of their students in other subjects of the National Board's examinations. Should the grades in any one subject fall very high or very low in comparison with the grades made by the same students in other subjects, it is apparent that either the examination in this subject or the teaching was not in line with the examinations and the teaching in other subjects. The board recognizes the great responsibility that this use of its examination places on those charged with their direct conduct. Five schools are now requiring their students to take and pass either part I of the National Board's examinations or both parts I and II. Several other schools have given their students the option of taking the National Board's examinations or the school's comprehensive examination. In one or two schools, passing the National Board's examinations in part I excuses the candidate from a portion of the final comprehensive examination given at the end of the fourth year. The three organizations now conducting the survey of medical schools, namely, the Council on Medical Education and Hospitals, the Association of American Medical Colleges and the Federation of State Medical Boards all have representative members on the National Board of Medical Examiners. As to the future, we wish to say that in the improvement and the conduct of its examinations the board must depend largely, as it has in the past, on the medical colleges and the hundreds of their faculty members who are so generously assisting in its part III clinical examinations in the twenty-two established centers throughout the United States.

Final Objective

DR. HAROLD RYPINS, Albany, N. Y.: It has been eight years since I first suggested the proper subdivision of functions among the various interested bodies, and six years since the responsibility of the supervision of medical education was placed in the hands of the Association of American Medical Colleges. The results have been disappointing. The association has failed to provide the funds and the administrative machinery necessary for the inspection and supervision of medical schools throughout the country. Largely as a result of this failure, and in view of the long period that had elapsed since any thoroughgoing inspection of our medical schools had occurred, the Council on Medical Education and Hospitals during the past two years has undertaken a complete reinspection of all the medical schools of this country and Canada. This has been done with the cooperation of the Association of American Medical Colleges and the federation, but the terms of this cooperation have been indefinite and confusing. In my opinion, unless the final results of this survey have the support

of the Council, the association and the federation, acting as a joint cooperating body, its effectiveness will be diminished. On the other hand, there is no gainsaying the fact that a great deal of good has already been accomplished by the survey. A large number of schools have definitely recognized their weak spots and have taken steps to remedy them.

The survey has spelled the end of any form of medical sectarianism in our schools. The problem of the two year schools is at last receiving the serious consideration which it deserves. Not least of the accomplishments has been the definite limitation in the number of students admitted as freshmen in various medical schools. The need for regular, complete reinspections, at not too infrequent intervals, has been demonstrated. One of the objectives considered by this survey has been the approximate number of physicians who should be trained each year and the capacity of our medical schools to train a definite number.

It should not be overlooked that as far as the protection of the public health is concerned the control of medical education and licensure is ineffective unless at the same time there is adequate machinery for the elimination of unlicensed practitioners and the discipline of licensed physicians. Possibly the greatest stimulation to the solution of these problems has been this annual congress, in which the interested bodies have freely exchanged ideas. It is probable that a permanent organization made up of representatives of these various bodies or at least a permanent consulting committee of representatives of these bodies might make more effective the achievement of the final objective.

DISCUSSION

DR. JOHN H. J. UPHAM, Columbus, Ohio: The discussion of the two year school has been thoroughly carried out, so that I will restrict my remarks largely to the inspection of medical colleges going on at present and the final objective. I think we all feel a deep sense of appreciation to the American Medical Association and to the Council for undertaking this very arduous work. To me, the great question is What are we going to do about it? For over thirty years I have been connected with a medical college, starting in a very humble capacity and working up in the last ten years to an administrative position. Almost as long as I have been in practice I have been interested in organized medicine and I am extremely anxious that the position of the American Medical Association should be thoroughly understood. For twenty-three years I have been a member of a state medical board. I can look at these things, therefore, from three different angles. It seems to me that we have a sort of military body, that the Council of the Association might be compared to the general staff, the Association of American Medical Colleges might be compared to the commissary or the quartermaster's department, and the members of the state medical boards are the men in the field and really in the front-line trenches, protecting the people from unqualified practitioners. Recently I took occasion to analyze the character of the membership of the state medical boards. Without counting those few states that have duplicate boards of different schools, there are practically 314 members on the forty-eight state boards and the board of the District of Columbia. Of the 300 professional members of the boards, 119 are listed in the American Medical Directory as general practitioners: 160 of them are listed as specialists, with a strong leaning toward surgeons; twenty-one are listed as teachers, having some connection with a medical college. Such a group of men cannot give to other people, to any other group, the actual duty of police power. That group should not be allowed to assume the onus of responsibility and criticism which would undoubtedly arise from some quarters. The only solution, it seems to me, is that this federation of boards should work out a method of active cooperation that will be for the best interests of the public which we serve. To my mind, the best solution of that sort would be, as Dr. Rypins suggested, a representative body that shall combine the interests of all three of the organizations that are interested in this subject, that we should have a representation from the Council; but the work of the Council is really fact finding. The Council should report to this body, composed further of representation from the Association of American Medical Colleges and a goodly representation from the Federation of State Medical Boards. The members of this body could then work out a plan from their own needs in their respective localities, from their interest in the fact that they must bear the responsibility of licensing and, therefore, guaranteeing to the people of their own state the quality of the candidates who come to them for examination. I think this body could go further. The present curriculum is in a very unsatisfactory state. As administrator I am constantly under pressure from all sides, specialists demanding more time for their respective specialties. We are trying to crowd the whole field of medical science into four years of instruction. Our students are dissatisfied; this can be seen from the fact that more and more of them are taking two years, three years and four years of postgraduate instruction in connection with hospital service. I feel that an organization of bodies such as I have mentioned could work out a curriculum that would be for the production of what Dr. Bierring spoke of yesterday, the basic doctor. Perhaps we might then work out a plan for the legalization finally of the various specialties. But our present curriculum must be cut down in unessentials in order that we can give our graduates, really, a basic foundation for the practice of medicine.

DR. WILLARD C. RAPPLEYE, New York: It seems to me that the inspection of the medical schools is putting the emphasis where it belongs, namely, on the quality of the educational process in these various institutions. I am sure, as I see the group working, that it is quite solicitous for these so-called two year schools, which might more appropriately be known as partial medical schools, as they are for the four year schools. After all, the basis on which the approval of any individual school ought to be made is the quality of the instruction in that institution. What was emphasized this morning also is extremely important, namely, that the unit of education is, after all, the student; and since it is not a matter of subject or of credits but of the character, the industry, the personality and the other qualifications of the individual student, that is the crux of all education. The second thing that this survey is bringing out is the fact that the medical course as such is a unit and that we are not so much concerned with the individual subjects of a curriculum. After all, what we are concerned with in the federation more particularly perhaps than even the individual schools is the end product; namely, a qualified man to go into the practice of medicine with safety. Perhaps we have seen in the setting up of this survey or reclassification of the medical schools one more historical step being taken in the direction of an ultimate plan of licensure in this country, which began in 1904 with the setting up of the Council and other studies that have been made; namely, that we are ultimately going to come to licensure on the basis of training and not on examination. Roger II of Italy was perhaps the man who first formulated that, 700 years ago, and that has been recognized all over Europe as the basis for licensure; namely, an adequate training in a recognized institution. It is my hunch that we shall undoubtedly see licensure in this country on the basis of training rather than examination. Dr. Upham elucidated the idea of a better correlation between these various agencies. I think that at the moment we are entering into another period of confusion, unless we get some better coordination and integration of these various activities. One cannot help but be struck by the situation in this country, the similarity between it and that which existed in Great Britain just prior to the establishment of the General Medical Council in 1858. In educational matters we in this country are fifty or sixty years behind the older countries of Europe. I think that we are approaching a period when we are going to come to the establishment of some kind of a council which will coordinate the problems of medical education, of medical licensure, in a way that is satisfactory to the profession, to the universities and to the licensing bodies. That was one of the conclusions reached by the Commission on Medical Education, whose report was issued in 1932. Of course, nothing has yet come of it, but I think it is likely to develop, just as there has been now rapidly developing a recognition of our responsibility in regard to the registration of specialists.

DR. JAMES N. BAKER, Montgomery, Ala.: The appeal of the National Board to me has been rather strong. I had the feeling that, since there remain only five states that do not give recognition to the diplomates of the National Board, we might interest ourselves in trying to get a full hundred per cent of our membership giving such recognition. It would be a stimu-

lus to the medical schools to have their faculties sufficiently interested to try to have their students appear before the National Board. Many of these young men develop sort of an inferiority complex regarding their ability to match up to the test of the National Board. I think that would be helpful in eliminating such an inferiority complex. Licensing boards might think of the recent diplomate of the National Board in the light of the individual that they are examining rather than through reciprocity or individual endorsement. His expense in taking the National Board examination is around $100. Then when he comes to locate in a state through reciprocity or individual endorsement, he is viewed not in the light of one to be examined by that board but in the light of reciprocity, and there, again, he is taxed. I think we might give consideration to viewing diplomates of the National Board in that light rather than in the light of reciprocity and making them pay the reciprocity fee.

DR. THOMAS J. CROWE, Dallas, Texas: If the classification of medical colleges shall be put out jointly by the federation and by the Council on Medical Education and Hospitals and, if possible, by the National Board of Medical Examiners, we can go into the courthouse and the legislature and defend it. But we cannot go into either place and defend it in my state if the classification is made by one single organization, the American Medical Association. It will be a great lever in the hands of the prosecutor of medical violations if we can go in with that backing; in other words, if the boards of medical examiners of the United States are the legal and authoritative body. I should say the federation should head the list. I want to say a word on the National Board. It is now, in my opinion, the highest medical credential in the world, and I am strongly for it, and I hope some day I shall be able to tell you that Texas has adopted it.

DR. WILLIAM R. DAVIDSON, Evansville, Ind.: I would like to support Dr. Crowe in what he says about that matter of classification. The reason the Indiana board came here as a body was that very thing. We had a recent case in which a lawyer expected to go into court regarding the classification of the medical school. His contention was based on the fact that the board had not inspected it for several years and it might have improved. To get around that, our whole board came up to pass on that inspection, do it ourselves, not accept the American Medical Association's classification, or the Council on Medical Education and Hospital's classification, because, as he said, that had no legal standing; that was up to the board to determine. This federation is the only legal body entitled to issue licenses, and the more it can be brought into our own fold, I think the stronger we shall be in court.

DR. J. EARL MCINTYRE, Lansing, Mich.: I wish to commend Dr. Davidson and Dr. Crowe for their remarks, because Michigan is in the same boat. Our attorney general's department has repeatedly ruled that we cannot accept the classification of an individual, nonofficial group such as the Council on Medical Education and Hospitals of the American Medical Association. Therefore we feel that this is a step in the right direction.

DR. IRVIN D. METZGER, Pittsburgh: That was foreseen when our part of the work was authorized. It does give legal value to it and it can be used in the states in prosecutions to much better advantage than it could be if it were from an unlegalized or unauthorized body alone.

DR. D. C. PATTERSON, Bridgeport, Conn.: There was one point with regard to the two year medical schools and other schools. There is greatly emphasized the lack of clinical material. I do not see any reason why these men in the second year class should have to see sick people. They should be made to study normal, healthy individuals thoroughly and there is no lack of material of that nature for them to study.

DR. HAROLD RYPINS, Albany, N. Y.: I am delighted at the reaction of the representatives of the various boards with reference to the official status of the federation regarding the report of these inspections. I would therefore move that the secretary of the federation be instructed to advise the Council on Medical Education and Hospitals as to the attitude of the Federation of State Medical Boards with reference to the procedure to be followed in announcing the results of the inspection.

[The question was called for, put to a vote and carried.]

(To be continued)

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Bill Passed.—S. 89, to amend the law authorizing nonprofit corporations to operate hospital service plans, has passed the senate. Among other things, this bill proposes to eliminate the prohibition in the present law against furnishing to the purchaser of a certificate for group hospitalization any benefits and privileges named in his certificate until a period of sixty days after the purchase date has elapsed. The bill also proposes certain changes with respect to the reserve such corporations must maintain.

ARIZONA

State Medical Meeting at Nogales.—The Arizona State Medical Association will convene in annual session in Nogales, April 23-25, with headquarters at the Hotel Montezuma, under the presidency of Dr. Charles R. K. Swetnam, Prescott. Wednesday evening, April 22, a public meeting on cancer will be held; speakers will be Drs. Orville N. Meland, Los Angeles; Roderick D. Kennedy, Globe; Clarence E. Young, Prescott; Charles S. Kibler, Tucson, and E. Payne Palmer, Phoenix. Guest speakers on the scientific program will include the following physicians:

Fred D. Vickers, Deming, N. M., Leukemia, with Report of a Case of Fifteen Years' Standing.
Jefferson R. Lemmon, Amarillo, Texas, Problem and Management of the Crying Child.
James W. Hendrick, Amarillo, Surgical Management of Duodenal Ulcer.
Robert C. Martin, San Francisco, New Developments in Pathology and Treatment of the Ear.
Isaac H. Jones, Los Angeles, The Prescribing of Hearing Aids.
Rea E. Ashley, San Francisco, Prevention of Sinus Disease.
George N. Hosford, San Francisco, and Roderic P. O'Connor, San Francisco, O'Connor Operation for Heterophoria and Heterotropia.
Earl D. McBride, Oklahoma City, Surgical Treatment of Arthritic Joints.
George D. Mahon, Dallas, Texas, Complications Seen in Thyroid Disease.
Frederick C. Cordes, San Francisco, Ocular Changes Resulting from Syphilis of the Central Nervous System, and the Administration of Tryparsamide.
Harold F. Whalman, Los Angeles, Dinitrophenol Cataract.
Richard O. Schofield, Boulder City, Nev., Fractures of the Os Calcis.

The governor, Dr. Benjamin B. Moeur, will address the Saturday morning session on "The State, the Industrial Commission and the Medical Profession." There will be two symposiums, one on tuberculosis, the other on medicine. Memorial services for the deceased members will also be held.

ARKANSAS

State Medical Meeting at Hot Springs.—The sixty-first annual session of the Arkansas Medical Society will be held at Hot Springs National Park, April 27-29, with headquarters at the Arlington Hotel and under the presidency of Dr. Melvin E. McCaskill, Little Rock. Speakers will include the following physicians:

Rosco G. Leland, Chicago, Changes Confronting Modern Medicine.
William D. Haggard, Nashville, Fundamentals of Goiter Surgery.
Jay Arthur Myers, Minneapolis, Using Our New Knowledge of Tuberculosis in Childhood.
James J. Waring, Denver, Importance of Physical Examination in the Diagnosis of Pulmonary Disease.
Horton R. Casparis, Nashville, Tenn., Feeding the Sick Infant.
Edward Lee Dorsett, St. Louis, Internal Podalic Version.
Meyer Wiener, St. Louis, Detachment of the Retina.
Willis C. Campbell, Memphis, Physiologic Principles Applied to the Treatment of Fractures.

Monday evening, April 27, a public meeting will be addressed, among others, by Dr. Leland and Dr. Haggard on "State Managed Medicine" and "What Price Health" respectively. A memorial session will be held Tuesday. Arkansas physicians included on the general program are:

Jesse D. Riley, State Sanatorium, Some Practical Thoughts and Suggestions to the General Practitioner on Tuberculosis.
Forrest A. Corn Jr., Lonoke, Diphtheria.
Martin C. Hawkins Jr., Searcy, Retroverted Uterus: What to Do About It.
Delmas K. Kitchen, El Dorado, Postpartum Atony of the Uterus.
Herbert Moulton, Fort Smith, Glaucoma.
Frank Vinsonhaler, Little Rock, Vienna a Few Years Ago: A Medical Center.

Virgil L. Payne, Pine Bluff, Results with Ionization Treatment in Nasal Allergy.
Theron E. Fuller, Texarkana, Blastomycosis of the Larynx Complicating Carcinoma.
James A. Foltz, Fort Smith, The Rising Mortality in Appendicitis.
Berry L. Moore, El Dorado, High Carbohydrate Diet in Diabetes.
Darmon A. Rhinehart, Little Rock, X-Ray Treatment of Acute Infections.
Francis J. Scully, Hot Springs National Park, Tonsillitis and Hyperthyroidism.
Maurice F. Lautman, Hot Springs National Park, The Sedimentation Test in Chronic Arthritis: Its Value as an Aid to Differential Diagnosis and Treatment.
Robert A. Milliken, Little Rock, Low Back Pain.
Joseph F. Shuffield, Little Rock, The Human Foot.
Francis Walter Carruthers, Little Rock, Common Foot Complaints.
Sam Phillips, Little Rock, Cyanosis in Infancy.
Donald Smith, Hope, Agenesia of Abdominal Muscles in New-Born Infant.
Alan G. Cazort, Little Rock, Present Status of Vaccine and Serum Therapy.

The program of one session Wednesday will be given by members of the staff of the Army and Navy General Hospital: Capt. Albert H. Robinson, "Chaulmoogra Oil in Treatment of Arthritis"; Major William J. Carroll, "Roentgenologic Aspects of Thoracic Tumors," and Major Chauncey E. Dovell, "Treatment of Chronic Empyema." The Arkansas State Pediatric Association will hold its second annual meeting at the Arlington, April 27; speakers will include Drs. Casparis on tuberculosis; Robert A. Strong, New Orleans, "Care of the New-Born for the First Ten Days," and E. C. Mitchell, Memphis, immunization problems. The woman's auxiliary to the state medical association will also be in session, April 27-29.

CALIFORNIA

Prevalence of Influenza.—The bulletin of the state department of health reports that about 12,000 cases of influenza were recorded in California during February. In some places school attendance was only 75 per cent of normal. A representative of the Rockefeller Institute for Medical Research, New York, made special studies, particularly in the San Joaquin Valley and the San Francisco Bay region, obtaining material for laboratory studies now in progress at the institute. The epidemic was prevalent during the latter part of January and all of February, with the peak occurring at the end of January or during the first part of February.

State Association News.—The supreme court refused, March 29, to hear the appeal of the supervisors of Kern County who had been enjoined from admitting pay and part pay patients to county hospitals. This action sustains the injunction of the circuit court which was recently upheld by the court of appeals.——Plans for the organization of a subsidiary corporation for malpractice insurance and indemnification or for group insurance with existing companies were reported on by a special committee at the council meeting, April 10.——A survey of tax supported county hospitals is being made by an association committee. Abuses will be demonstrated, administration policies advanced and the amount of free services rendered by physicians computed.

FLORIDA

State Meeting Aboard the S. S. *Florida*.—The sixty-third annual meeting of the Florida Medical Association will be held on the S. S. *Florida* April 27-29, on a cruise to Havana, under the presidency of Dr. Herbert L. Bryans, Pensacola. In Havana, entertainment has been planned, including golf at the Havana Country Club and sightseeing trips. The scientific program will be presented by the following physicians:

Louis M. Orr, Orlando, Present Day Conceptions of the Management of Prostatic Obstruction.
John C. Vinson, Tampa, Cautery in Acute Epididymitis and Orchitis.
Louie M. Limbaugh, Jacksonville, Collapse Therapy of Pulmonary Tuberculosis.
Kenneth A. Morris, Jacksonville, Surgical Treatment of Pulmonary Tuberculosis.
Hubbard H. Gates, Bradenton, Sulphur, the Forgotten Remedy.
Ralph E. Russell, Ocala, Treatment of Eye Diseases by the General Practitioner.
William C. Roberts, Panama City, Progress Toward Lessening Maternal Morbidity and Mortality.
Paul B. Welch, Miami, Management of Peptic Ulcer.
Samuel Marion Salley, Miami, The Systolic Murmur: Its Interpretation.
Joseph W. Taylor, Tampa, Rôle of Sinusitis in the Production of Cough.
Harry Hamilton Cooke, Miami, Trigeminal Neuralgia.
James G. Lyerly, Jacksonville, Brain Surgery and Epilepsy.
Prescott LeBreton, St. Petersburg, The Value of Skeletal Traction, Especially in Fractures About Joints.

The seventeenth annual meeting of the Florida Railway Surgeons' Association will also be held on this trip, convening Monday morning. The first annual meeting of the Florida Pediatric Society will be held Monday morning in the smoking room of the S. S. *Florida*. Speakers will include the following physicians:

Arthur H. Weiland, Coral Gables, Orthopedic Surgery in Childhood.
William W. Anderson, Atlanta, Ga., Relationship of General Medicine to Pediatrics.
Walter C. Jones Jr., Miami, Relationship of General Surgery to Pediatrics.
Thomas E. Buckman, Jacksonville, Blood Dyscrasias in Infancy and Childhood.
Gilbert S. Osincup, Orlando, Respiratory Infections in Infancy and Childhood.
William W. McKibben, Miami, Diseases of the New-Born.

The fifth annual meeting of the Florida Radiological Society will be held at the McAllister Hotel, Miami, April 26.

ILLINOIS

Tuberculosis Meeting.—The twenty-seventh annual meeting of the Illinois Tuberculosis Association was held at the Orlando Hotel, Decatur, April 6-7. Dr. William A. Hudson, chief, division of thoracic surgery, Grace Hospital, Detroit, conducted a clinic on intrapleural pneumolysis. The speakers on the program included:

Dr. David O. N. Lindberg, Decatur, Rôle of the Chest Roentgenogram in Tuberculosis.
Dr. Robinson Bosworth, Rockford, Essential Considerations Affecting the Selection of Patients Who May Profit Most from Sanatorium Treatment and Primary Reasons for Eliminating Certain Groups from the Sanatorium.
Dr. Arthur S. Webb, Wheaton, Basic Elements in Sanatorium Treatment.
Dr. Herbert L. Pettitt, Morrison, Problems Facing the Physician Treating Tuberculosis in the Home.
Dr. Irenaeus L. Foulon, East St. Louis, A Practical Approach to the Tuberculosis Problem in the Large Counties of Southern Illinois Which Have a Large Negro Population.

At the annual banquet Tuesday evening, Dr. Gerald B. Webb, Colorado Springs, gave "An Outline of the History of Tuberculosis."

Chicago

The Pasteur Lecture.—Charles Judson Herrick, Sc.D., professor emeritus of neurology, University of Chicago, will deliver the fourteenth Pasteur Lecture of the Institute of Medicine of Chicago Friday evening, April 24, in Thorne Hall on McKinlock Campus, Northwestern University. His subject will be "Neurobiological Foundations of Modern Humanism."

Gehrmann Lectures.—Dr. Victor G. Heiser, formerly director of Far East for the International Health Board, Rockefeller Foundation, will deliver the Gehrmann Lectures for 1935-1936 in the Medical and Dental Laboratory Building, 1853 West Polk Street, April 29-30 and May 1. The titles of the lectures are "Coordination of Disease Control Throughout the World by the League of Nations"; "International Research in Leprosy," and "Dietary Opportunities in Preventive Surgery."

Department of Psychiatry Expanded.—As a part of the general reorganization of the department of psychiatry at Michael Reese Hospital, Dr. Martha Goldinger Wilson MacDonald has been appointed in charge of child psychiatry and Dr. Milton L. Miller, resident psychiatrist in charge of the inpatient service. Dr. MacDonald is a graduate of the University of Pittsburgh School of Medicine and has been associated with the Danvers State Hospital, Danvers, Mass., the Illinois Institute of Juvenile Research and the Payne-Whitney Psychiatric Clinic, New York. Dr. Miller graduated from Harvard Medical School. He served on the staff of the Enoch Sheppard-Pratt Hospital in Baltimore and, under a fellowship of the Rockefeller Foundation, studied one year at Queen Square Hospital, London, and one year at the Payne-Whitney Psychiatric Clinic, New York. Dr. Jacob Kasanin, formerly clinical director of Rhode Island State Hospital for Mental Diseases, Howard, R. I., was recently appointed director.

IOWA

Prevalence of Smallpox.—The state department of health announces that twenty-seven cases of smallpox were reported during the week ended March 21. Reported cases of this disease for the first three weeks of March are more than five times the number reported a year ago, and thus far in 1936 the number of reported cases of smallpox is over six times that for the same period in 1935.

State Medical Meeting in Des Moines.—The eighty-fifth annual meeting of the Iowa State Medical Society will be held in Des Moines, April 29, 30 and May 1, with headquarters at the Hotel Savery, and under the presidency of Dr. Thomas A. Burcham. A symposium on intracranial lesions will be held Wednesday morning with the following speakers:

Drs. William E. Ash, Council Bluffs, Olan R. Hyndman, Iowa City, John D. Camp, Rochester, Minn., and Cecil S. O'Brien, Iowa City. Thursday morning the program will be presented by the following physicians:

Solon Marx White, Minneapolis, Essential Hypertension.
William Wayne Babcock, Philadelphia, Breast Tumors.
Arthur C. Christie, Washington, D. C., Modern Conception of Irradiation Therapy in Malignancy.
Samuel J. Kopetzky, New York, Diseases of the Petrous Portion of the Temporal Bone from the Standpoint of the General Medical Man, the Neurologist and the Otologist.
Philip C. Jeans, Iowa City, Feeding Cases.

Wednesday and Thursday afternoons will be devoted to sectional conferences, with Friday morning set apart for papers by the following:

Dr. Babcock, Anesthesia.
Dr. White, Paroxysmal Cardiology.
Dr. Christie, Medical Economics.
Dr. Olin West, Chicago, Secretary and General Manager, American Medical Association, Medical Organization.

The "medical minstrels of 1936" will present "The Social Security Act" at the smoker Wednesday evening. The annual banquet will be held Thursday evening with Dr. James C. Hill, Newton, as toastmaster. Dr. Burcham and Dr. Prince E. Sawyer, Sioux City, will deliver their addresses as president and president-elect of the society, respectively. Most Rev. Gerald T. Bergan, bishop of Des Moines, will also speak. The State Society of Iowa Medical Women will hold its thirty-ninth annual meeting April 29; speakers will include Dr. Florence Brown Sherbon, Lawrence, Kan., on "The Woman Physician in a Changing World." The woman's auxiliary of the state society has also planned an elaborate program for its annual session at this time.

LOUISIANA

Health at New Orleans.—Telegraphic reports to the U. S. Department of Commerce from eighty-six cities with a total population of 37 million, for the week ended April 4, indicate that the highest mortality rate (26.8) appears for New Orleans and the rate for the group of cities as a whole, 13. The mortality rate for New Orleans for the corresponding period last year was 15.5 and for the group of cities, 12. The annual rate for eighty-six cities for the fourteen weeks of 1935 was 13.7 as against a rate of 12.7 for the corresponding period last year. Caution should be used in the interpretation of these weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate.

MAINE

Pneumococcus Typing Stations Established.—Seventeen stations for typing pneumococcic sputum have been established in Maine by the state bureau of health. Persons unable to pay may obtain Felton's refined concentrated serum free at the station if the sputum appears to be positive for type I or type II pneumonia. Persons able to pay may also purchase the serum from the typing station if their drug stores do not have a supply on hand or are unable to get a supply promptly. Following a study by the bureau of health on the value of typing and treatment, a fund was granted by the governor and his executive council to institute this service.

MINNESOTA

Society News.—At a meeting of the Hennepin County Medical Society April 8 in Minneapolis, Drs. James S. Reynolds and William P. Sadler Jr., spoke. The society was addressed April 1 by Drs. Walter H. Fink and Miland E. Knapp. —— The Minneapolis Surgical Society was addressed April 2 by Drs. Richard R. Cranmer on "Bilateral Transplantation of the Ureters into the Sigmoid for Exstrophy of the Bladder," and Alfred W. Adson, Rochester, "Essential Hypertension—The Rationale of Surgical Treatment by Extensive Sympathectomy."

Hospital Conference.—The thirteenth annual conference of the Minnesota Hospital Association will be held at the Hotel Lowry, St. Paul, May 14-15. Speakers will include Drs. Herbert A. Burns, Ah-Gwah-Ching, on "The Control of Tuberculosis Among Nurses and Hospital Personnel"; Seymour R. Lee, superintendent, Ancker Hospital, St. Paul, "Relationship of the State Hospitals to the Private Hospitals"; William H. Hengstler, St. Paul, "Medicolegal Aspects of Keeping Hospital Records," and George A. Earl, St. Paul, "Nursing Education from the Medical Point of View."

MISSOURI

Diphtheria Immunization Campaign.—A campaign to immunize children against diphtheria will be conducted in Kansas City, April 20-25. This week has been set aside for attention to families of low income. The health department will furnish alum precipitate toxoid without charge and asks that it be administered for a charge of not more than one dollar. In cases in which this fee cannot be paid, free immunization will be given at the Kansas City General Hospital. From 1920 to 1923, when there were no immunizations, 723 cases of diphtheria were reported, with an average of 56.5 deaths. During 1934-1935, 6,068 immunizations were carried out; 121 cases of diphtheria were reported with nine deaths.

NEW YORK

Medical Museum in Rochester.—A medical unit in the Rochester Museum of Arts and Sciences is to be established under the auspices of the Rochester Academy of Medicine. The new section will be operated as a teaching museum accessible to all citizens who have a legitimate interest in the historical, artistic or scientific aspects of medicine, according to the *New York State Journal of Medicine*. Permanent exhibits will be built up, but there will also be special and rotating exhibits on timely subjects.

State Medical Meeting.—The one hundred and thirtieth annual meeting of the Medical Society of the State of New York will be held at the Waldorf-Astoria, New York, April 27-29. The house of delegates will meet Monday, April 27; general sessions will be held Tuesday and Wednesday afternoons and section meetings Tuesday and Wednesday mornings. Speakers at the general sessions will be:

Lord Horder, chief of medical service, St. Bartholomew's Hospital, London.
Dr. James S. McLester, Birmingham, Ala., President, American Medical Association, Influence of the Present Day Depression on the Nutritive State of the American People.
Dr. William M. James, Panama, R. P., Epidemiology, Diagnosis and Treatment of Amebiasis.
Dr. Harrison S. Martland, Newark, N. J., Teaching of Forensic Medicine.
Dr. Walter M. Simpson, Dayton, Ohio, Artificial Fever Therapy of Syphilis and Gonococcic Infections.
Dr. Urban Maes, New Orleans, The Place of Surgery in Treatment of Peptic Ulcer.
Dr. Fred W. Rankin, Lexington, Ky., Malignant Neoplasms of the Colon.
Dr. William G. Exton, New York, Differential Diagnosis of Conditions Associated with Sugar Excretion.

There will be symposiums on the nervous system in relation to automobile and industrial accidents, arthritis, diseases of the liver, gallbladder and pancreas, silicosis, industrial diseases and accidents to the hand. Invited guests to address the sections include:

Dr. Walter Bauer, Boston, Classification and Differential Diagnosis of Joint Diseases.
Dr. Dean D. Lewis, Baltimore, Surgical Lesions of the Pancreas.
Dr. Géza de Takáts, Chicago, Surgical Aspects of Acute Peripheral Vascular Disease.
Dr. Harry Hudnall Ware Jr., Richmond, Va., Full Term Extra-Uterine Pregnancy.
Dr. Leonard G. Rowntree, Philadelphia, Rôle of the Thymus Gland in Growth and Development.
Dr. Sanford R. Gifford, Chicago, Ocular Therapeutics.
Dr. Nolan D. C. Lewis, Washington, D. C., Extraneural Pathology of Paranoia and Manic-Depressive Psychoses.
Dr. Charles C. Higgins, Cleveland, Factors Influencing the Formation and Dissolution of Renal Calculi and Their Application to the Prevention of Recurrent Renal Lithiasis.
Dr. David M. Davis, Philadelphia, Rationale of Treatment in Urinary Infection.
Dr. Harry Hauser, Cleveland (with Dr. George T. Pack, New York), Roentgen Diagnosis of Malignant Tumors of the Stomach.
Dr. Thomas P. Sprunt, Baltimore, Certain Aspects of Blood Flow.

An open forum will be held Wednesday evening, April 29, in the ballroom of the Waldorf-Astoria at which the following speakers will discuss "What the Community Should Know" about the following subjects:

Dr. Albert A. Epstein, New York, Diabetes.
Dr. George P. Müller, Philadelphia, Appendicitis.
Dr. James S. Greene, New York, Stuttering and Stammering.
Dr. Arthur J. Bedell, Albany, Failing Eyesight.
Dr. Charles Gordon Heyd, New York, Goiter.
Dr. Louis C. Schroeder, New York, Infantile Paralysis.
Dr. A. Raymond Dochez, New York, Common Colds.
Dr. Morris Fishbein, Chicago, Quacks and Quackery.

At the annual banquet Tuesday evening guests of honor will be Lord Horder of London; Dr. Willard C. Rappleye, dean, Columbia University College of Physicians and Surgeons, and William M. Lewis, LL.D., president, Lafayette College, Easton, Pa. These guests will speak and Dr. Frederic E. Sondern, retiring president of the society, will also make an address.

New York City

Diploma Lost.—Dr. David Hershkowitz has reported the loss of his diploma from the New York Homeopathic Medical College. He was graduated in 1921.

Alumni Day at Long Island College.—The annual meeting of the Alumni Association of Long Island College of Medicine will be held at the college, April 25. At a morning session Dr. Adolph G. De Sanctis, a graduate of 1914, will present a paper on "Appendicitis in Childhood," which will be discussed by Drs. Thomas M. Brennan and Carl Laws. At luncheon Dr. William E. Lippold, 1905, will be the speaker. The annual dinner will be held at the Knights of Columbus Club, Prospect Park West.

Society News.—At a meeting of the Medical Society of the County of New York, March 23, speakers were Drs. Lucy DuBois Porter Sutton, on "Diagnosis of Chorea and Its Relation to Rheumatic Fever"; Irving R. Roth, "Certain Aspects of Recurrent Affections in Juvenile Rheumatism," and Valentina P. Wasson, "An Attempt at Immunization of Rheumatic Fever Children."——Dr. Eugene R. Marzullo and Frederick B. Flinn, Ph.D., addressed the Medical Society of the County of Kings, March 17, on "Lead Poisoning" and "Arsenical Poisoning in the Industrial Field" respectively.——Dr. Walter T. Dannreuther gave an afternoon lecture before the Medical Society of the County of Queens, March 20, on "Clinical Manifestations of Extra-Uterine Pregnancy."

NORTH CAROLINA

The Negative Wins State Medicine Debate.—Negative teams were generally victorious in debates held throughout North Carolina March 27 on the question Resolved, That the several states should enact legislation providing for a system of complete medical service available to all citizens at public expense, the Raleigh *News and Observer* reported March 28. According to this report, coaches and judges expressed the opinion that the question was "unusually one-sided."

OHIO

Typhoid Epidemic at Mansfield.—More than 100 cases of typhoid had been reported up to March 27 in an outbreak at Mansfield. At that time the source of infection had not been determined, more than 170 tests having been made of the city water without evidence of contamination. About 7,000 persons in the town had been immunized. The health officer, Dr. Millard C. Hanson, issued a warning against capsules that were being sold for immunization instead of inoculation, newspapers reported. Chlorination of the entire city water supply was begun March 20; only one section of the city previously had chlorinated water. Representatives of the state board of health were reported to have gone to the city March 23 to assist in the investigation.

Alumni Meeting at Kansas City.—Medical alumni of Ohio State University will have a dinner meeting Wednesday evening, May 13, in Kansas City, during the annual session of the American Medical Association. The place will be announced later. Dr. John H. J. Upham, Columbus, dean of the medical school, and Dr. Jonathan Forman, Columbus, secretary of the medical alumni association, will be present. John B. Fullen, national alumni secretary, will also attend and will exhibit motion pictures of the university's 1935 football season. Those who plan to attend should notify Dr. Arthur L. Osborn, 600 Professional Building, Kansas City, Mo., who is in charge of local arrangements. Dr. Henry W. Lehrer, Sandusky, is president of the medical alumni.

PENNSYLVANIA

Society News.—Dr. Zoe Allison Johnston, Pittsburgh, addressed the Fayette County Medical Society, Uniontown, April 2, on "Indications for Use of Radium and X-Rays in the Treatment of Malignancy."

Auxiliary Sponsors Lectures.—The Woman's Auxiliary of the Schuylkill County Medical Society conducted its first health institute April 14 in Pottsville. Speakers included Dr. James Stratton Carpenter, Pottsville, on antepartum and maternal welfare; Harry Logan, D.D.S., Mt. Carmel, facial deformities; Edwin B. Twitmyer, Ph.D., professor of child psychology, University of Pennsylvania, Philadelphia, freedom and discipline as factors in mental hygiene; Dr. John A. Sweeney, Philadelphia, tuberculosis, and Dr. Peter B. Mulligan, Ashland, control of cancer. Mrs. W. Burrill Odenatt, Philadelphia, state president of the auxiliary, was also a speaker.

Philadelphia

Orchestra Organized.—The Philadelphia County Medical Society Orchestra held its first rehearsal, March 6, under the direction of Mr. Gordon Kahn; about forty musicians attended.

Group Medical Service Ruled Illegal.—The state insurance commissioner has ruled that the organization headed by Dr. Charles Dudley Saul, furnishing medical service to subscribers at $2 a month, constitutes an insurance business. In order to continue, the commissioner said, Dr. Saul must organize an insurance company and modify his contracts to conform with insurance laws.

Personal.—Dr. Charles E. G. Shannon was elected president of the Alumni Association of the Jefferson Medical College, January 15.——George D. Rosengarten, Ph.D., member of the Committee of Revision of the U. S. Pharmacopeia and former president of the American Chemical Society, died at his home in Philadelphia, February 24, aged 67. Dr. Rosengarten was vice president of the Powers-Weightman, Rosengarten Company for many years, retiring when that firm merged with Merck and Company in 1927.——The staff of Memorial Hospital gave a reception, March 17, in honor of Dr. James W. McConnell, recently appointed professor of neurology at Temple University School of Medicine.

Society News.—Dr. Roger C. Graves, Boston, among others, addressed the Philadelphia Urological Society, March 23, on "Bladder Complications of Carcinoma of the Cervix."——The annual conversational lecture of the Pathological Society of Philadelphia was delivered at a joint meeting of the society and the Philadelphia Roentgen Ray Society, April 2, by Dr. Antoine Lacassagne, assistant director of the Radium Institute, University of Paris; his subject was "A Hormonal Pathogenesis of Adenocarcinoma of the Breast."——Drs. Orthello R. Langworthy, Baltimore, and Harold G. Wolff, New York, addressed the Philadelphia Neurological Society, March 27, on "A Clinical Study of the Control of the Bladder by the Central Nervous System" and "The Site of Action of Acetylcholine and Its Biologic Significance" respectively.——A symposium on arthritis was presented at the meeting of the Philadelphia County Medical Society, April 8, by Drs. Theodore F. Bach, John Eiman, Charles W. Scull and Ralph Pemberton.——Dr. James B. Murphy, New York, delivered the fifteenth Nathan Lewis Hatfield Lecture before the College of Physicians of Philadelphia, April 1, on "Etiology of Cancer Based on Present Knowledge."

RHODE ISLAND

Bills Introduced.—S. 212 and H. 857, to amend the workmen's compensation act, propose to raise to $150 the liability of an employer for medical services, exclusive of hospital services, furnished a workman injured in the cause of his employment, and to raise the employer's liability to $200 for medical services rendered to an employee who has received hospital treatment for more than fourteen days. The bills also propose to make certain enumerated occupational diseases compensable.

SOUTH CAROLINA

Bill Enacted.—S. 1119 has been enacted, authorizing the city council of any municipal corporation of more than 5,000 and less than 10,000 inhabitants, which has acquired, constructed or caused to be constructed a hospital, to establish a city hospital commission to operate and manage the hospital.

Bill Passed.—H. 2050 has passed the house, proposing to create a health board of Charleston County, to consist of five members, four to be appointed by a majority of the Charleston County legislative delegation and one to be appointed by the city council of Charleston. The county health board is to be authorized to employ a county health officer for Charleston County, who is to employ, with the approval of the county health board, a chief sanitary inspector, sanitary inspectors and a county health nurse. The county health board is to be empowered to make reasonable rules and regulations for the promotion of health and the prevention of disease within the county.

SOUTH DAKOTA

Combined Meeting of Related Professions.—Six interrelated medical groups in South Dakota will hold their annual meetings in Sioux Falls during the week of May 4. This plan is the result of efforts of the medical economics committee of the South Dakota State Medical Association to develop interest in problems common to the professions and to effect organization of an interprofessional council. Each group appointed two

members to this council and all selected the same meeting place and time. Meetings will be conducted separately, except on Wednesday, May 6, when a combined meeting will be held, with a program dealing with economic matters, followed by a banquet in the evening. The organizations are, in addition to the state medical association, the South Dakota State Dental Association, South Dakota State Veterinarians' Association, South Dakota State Nurses' Association, South Dakota State Hospital Association and South Dakota State Pharmaceutical Association.

WISCONSIN

Radio Station to Refuse "Patent Medicine" Advertising.—It is reported that, as a result of efforts of the Woman's Auxiliary of the Medical Society of Milwaukee County, Station WEMP, Milwaukee, has informed the society that objectionable products such as "patent medicines" will not be advertised over that station.

Society News.—Speakers at a meeting of the Milwaukee Society of Clinical Surgery, March 24, were Drs. Lewis J. Pollock, Chicago, on "Diagnosis of Peripheral Nerve Injuries"; Theodore H. Burbach, Milwaukee, "Rectal Surgery"; Loyal Davis, Chicago, "Surgical Treatment of Epileptiform Seizures," and Ernest V. Smith, Fond du Lac, "Removal of a Large Dermoid Cyst from the Anterior Mediastinum."——Among speakers at the winter meeting of the Ninth Councilor District Medical Society at Marshfield, February 20, were Drs. Arthur J. Patek, Milwaukee, on "Coronary Disease"; Harry Culver, Chicago, "Borderline Problems in Diagnostic Urology," and Rudolph W. Roethke, Milwaukee, "Toxemia of Pregnancy."——Dr. Oliver P. Kimball, Cleveland, addressed the Medical Society of Milwaukee County, March 13, on "Twenty Years of Goiter Prevention" and Dr. Arnold S. Jackson, Madison, chairman of the special committee on goiter, State Medical Society of Wisconsin, on "The State Program as It Relates to Goiter Prevention."——Dr. William Walter Wasson, Denver, addressed the Milwaukee Roentgen Ray Society, February 15, on "Differential Diagnosis Between Pulmonary Tuberculosis and Nontuberculous Disease of the Lungs."

GENERAL

Examinations in Urology.—The American Board of Urology, Inc., announces that examinations for its certificate will be held in Boston, May 22-24. Examinations will also be held in Kansas City, Mo., May 8-10, preceding the meeting of the American Medical Association.

News of Meningitis Epidemics.—Public gatherings were forbidden in Covington, Ky., by an order of the city board of health March 25 after three cases of meningitis had appeared in Kenton County. Pike County in eastern Kentucky was placed under a ban March 21, when three new cases appeared in Pikeville, making the total in the county eight. The state board of health reported that 182 cases had been reported in the present outbreak, most of them in the southeastern counties. There have been about fifty deaths.——Two deaths from meningitis have been reported among 1,280 soldiers from the transport ship *Republic* now under quarantine at Fort Clayton, Canal Zone, according to newspaper accounts March 29.——A Civilian Conservation Corps camp at Tampa, Fla., was placed under quarantine March 18, when a member of the corps was found to have meningitis.——A Negro high school in East St. Louis, Ill., was ordered closed March 21 after the death of a student from meningitis; three other recent deaths were believed to have resulted from the disease.

Medical Bills in Congress.—*Change in Status:* H. R. 8874 has been reported to the House, providing that for the purposes of promotion there shall be credited to officers of the Medical Corps all active service as officers of the Medical Reserve Corps rendered by them between April 23, 1908, and April 6, 1917. *Bills Introduced:* H. Res. 481, introduced by Representative Daly, Pennsylvania, proposes to request the Administrator of Veterans' Affairs to submit a report to the House of Representatives respecting the naval hospital at Philadelphia, setting forth the facilities at the hospital, the extent of its use by veterans, the needs for additional facilities for veterans at the hospital, the number of veterans who applied for hospitalization during the past year, and certain other facts. A similar resolution, H. Res. 432, proposing to request the Secretary of the Navy and the Administrator of Veterans' Affairs to submit the report, was reported to the House by the Committee on Naval Affairs with recommendation that the resolution not pass. H. J. Res. 561, introduced by Representative Mapes, Michigan, and referred to the Committee on Rules, proposes to create a Committee on the Reorganization of the Executive Branch of the Government, to consist of fifteen members, five to be appointed by the President of the United States, five Senators to be appointed by the President of the Senate, and five members of the House of Representatives, to be appointed by the Speaker of the House. H. R. 12169, introduced by Representative Hoeppel, California, proposes to increase the pensions payable to totally disabled veterans of the Spanish-American War, the Philippine Insurrection and the China relief expedition. H. R. 12172, introduced by Representative Risk, Rhode Island, proposes to authorize an appropriation of $1,200,000 to erect, in Rhode Island, a veterans' hospital for the diagnosis, care and treatment of general medical and surgical disabilities.

CANADA

Balfour Lecture.—Dr. Melvin S. Henderson, professor of orthopedic surgery, Mayo Foundation, Rochester, Minn., delivered the tenth annual Donald C. Balfour Lectureship in Surgery at the University of Toronto April 6. Dr. Henderson's subject was "Orthopedic Surgery: A Historical Review."

Health Insurance Bill Passed.—The legislature of British Columbia passed a health insurance bill April 1 by a vote of 29 to 14. Employees will pay 2 per cent of their wages but not more than 70 cents per week; employers will pay 1 per cent, but not more than 35 cents per week, of the employees' wages. The government will contribute $50,000 to set up an organization under which the scheme will be operated, a commission to be composed of a chairman, a vice chairman and two or three members. Their maximum remuneration will be respectively $7,500, $6,000 and $2,500 a year. The commission will be assisted by a technical advisory board of six members including the provincial health officer, the chairman of the workmen's compensation board, one physician, a representative of a woman's organization and two others whom it may be deemed advisable to appoint.

Government Services

Dr. Parran Named Surgeon General

Dr. Thomas H. Parran Jr., since 1930 health commissioner of the state of New York, was appointed surgeon general of the U. S. Public Health Service, March 27. Dr. Parran was nominated for the position March 23 and was sworn into office April 6. He succeeds Dr. Hugh S. Cumming, who retired February 1 after sixteen years' service. Dr. Parran is 43 years of age. He graduated from Georgetown University School of Medicine in 1915. He was commissioned as assistant surgeon in the U. S. Public Health Service in 1917. He became medical officer in charge of the Muscle Shoals Sanitary District and chief medical officer at the government nitrate plant in 1918. He was appointed executive officer of the medical department of the War Risk Insurance Bureau in 1919 and in November of that year was placed in charge of the Tri-State Sanitary District comprising the lead and zinc mining areas of Kansas, Missouri and Oklahoma. From 1921 to 1923 he served as state director of rural sanitation in Missouri and subsequently was assigned to the Illinois State Department of Health as director of county health work. In September 1926 he was appointed assistant surgeon general and given administrative charge of all venereal disease control activities of the U. S. Public Health Service. Dr. Parran is president-elect of the American Public Health Association. In 1935 he was chairman of the American delegation to the International Congress of Dermatology and Syphilis in Budapest. He is the sixth surgeon general of the U. S. Public Health Service and the first who has served as state health officer prior to becoming surgeon general.

CORRECTIONS

Northwoods Sanatorium.—In the Tuberculosis Number of THE JOURNAL, Dec. 7, 1935, page 1905, it should have been indicated that Northwoods Sanatorium, at Saranac Lake, N. Y., is fully equipped for roentgenographic, fluoroscopic and pathologic laboratory services.

Typhoid Transmission by Rectum.—THE JOURNAL April 4, page 1224, in a Query and Minor Note, indicated that there did not appear to be any record of transmission of typhoid by way of the rectum through the use of rectal tubes contaminated with typhoid bacilli. More recently a reference has been found to a series of cases reported by Dr. C. R. Hervey of Oswego, N. Y., in the *American Journal of Public Health* of February 1929, page 166.

Foreign Letters

LONDON

(From Our Regular Correspondent)

March 10, 1936.

Bill to Restrict the Advertisement of Nostrums and Appliances

A bill to check the glaring evil of the more or less fraudulent widely advertised nostrums and surgical appliances has received a first reading in the house of commons. The bill has received the support of the British Medical Association, the Society of Health Officers, the Pharmaceutical Society, newspaper and advertising associations and bodies representing the drug trade, and the manufacturers of surgical instruments. The bill makes it illegal to hold out as effective any medicine or appliance for the cure or prevention of Bright's disease, cancer, consumption, diabetes, epilepsy, fits, locomotor ataxia, lupus or paralysis; also for the cure of amenorrhea, hernia, blindness, any structural or organic ailment of the auditory system, habits associated with sexual excess or indulgence, and any ailment associated with those habits; procuring miscarriage, and promotion of sexual virility in men or sexual desire in women. It will also be illegal to publish a document containing an intimation that any person is prepared to treat by correspondence any of these. So far the prohibition is quite general. But the following exceptions are made. "Holding out" will be permitted in the following circumstances: (1) by a physician or dentist in the exercise of his profession; (2) if it is directed to physicians, dentists, nurses, pharmacists, hospitals and persons engaged in the supply of medicines or appliances; (3) in technical publications; (4) in connection with patent applications; (5) to a patient for whom the medicine or appliance has been ordered by a physician or dentist. Certain advertisements of articles of diet which would otherwise be illegal will be permitted. But the claim must be no more than that as an article of diet the article is effective in preventing or in exercising a salutary influence (but not curing) the ailments mentioned.

Invitations to correspond with a view to diagnosis or treatment may not be issued by the proprietor or distributor of a medicine. There is a saving clause for a person who has a religious belief in the effectiveness of some means other than medicines or appliances. He may hold out this means as effective, but for this defense he must show the court that he is acting in accordance with the principle and practice of a religious body comprising a substantial number of persons who hold that belief. This exemption is designed to cover "faith healing" and treatment by prayer.

English Universities Decline to Attend the Celebrations of the University of Heidelberg

The British universities and learned societies have received invitations to attend the celebration of the University of Heidelberg and to present congratulations. The result is a long correspondence in the *Times*, which was begun by the bishop of Durham. He pointed out that the supreme and universal claim of truth and the indispensability of liberty in its pursuit are postulates which govern the practice of civilized universities and asked whether these postulates are accepted by Heidelberg. The British universities are the vigilant guardians of intellectual freedom. The presentation of congratulations by their representatives at the present time would be understood as a deliberate condonation of the intolerance that has emptied the German universities of many of their most eminent teachers. From Heidelberg alone forty have been expelled, including Prof. Hans Sachs, the eminent serologist. In the correspondence that followed, the views of the bishop were endorsed by leading men. Sir Gowland Hopkins, professor of biochemistry at Cambridge, wrote that three years ago all learned institutions in this country would have rejoiced in proclaiming the record of Heidelberg. But they were now asked to give the appearance of approval to the disastrous changes that have done so much to destroy academic freedom. The unusual choice of a term which corresponded to a half centenary was significant. Sir Ernest Graham Little (dermatologist and member of parliament for London University) said that "the open door" which was distinctive of London University was flouted and therefore it was unthinkable that a representative would be sent.

In the course of the correspondence it was pointed out that 1,300 professors and lecturers have been expelled from the German universities as a result of racial, religious or political persecution. Of these, 700 have left Germany and 650 have been placed in permanent or temporary posts where they can continue their work, thanks to an extraordinary manifestation of academic solidarity. The Academic Assistance Council of England has placed 200 in the British Empire. It would be strange if those who in the cause of academic freedom have come to the aid of these exiles of persecution should join in any congratulations, especially as the celebrations at an unusual time seem to be a political move—the thinly disguised aim to suggest the approval by the outer world of the Nazi rule. The defense was made that the persecution is not the work of the university but is imposed on it by the government. To this the answer has been made that under these circumstances the proper thing to do is to send Heidelberg a letter of condolence.

So far the official decisions of three universities are announced. The senate of the University of Birmingham has unanimously declined the invitation of Heidelberg University. The vice chancellor of the University of Cambridge has informed the rector of Heidelberg that the council of the senate regrets that it is not able to propose to the university the acceptance of the invitation to participate in the celebration and has conveyed to him the council's sense of the eminent services which Heidelberg University has rendered to science and letters in the course of its long history. The University of Oxford has also declined to send a representative but will present an address in Latin.

Kept Alive for Four Years by Artificial Respiration

A man has died at Chiddingfold, Sussex, who was kept alive for four years by artificial respiration. In 1931 he found that he had to help his respiration by pressing on his chest. His trouble so increased that in June 1932 artificial respiration had to be performed day and night by relays of relatives and friends. In September 1933 Sir William Bragg, the physicist, who was a friend of the family, devised an apparatus in which two football bladders were connected by a wide rubber tube. One was bandaged tightly to the chest and the other was placed between two hinged boards, so that it could be worked by the feet like a bellows. This worked well. Later, at the request of Sir William Bragg, a hydraulic apparatus, to be worked off the water supply, was designed by a London scientific instrument maker. This was used up to the time of death (THE JOURNAL, May 26, 1934, p. 1766).

Damages for Injuring the Sciatic Nerve

An appeal was made to the Judicial Committee of the Privy Council against a judgment of the Supreme Court of Trinidad awarding damages of $4,300 to a man for the negligent treatment of a physician. It was claimed that the latter unskilfully treated him for malaria by inserting a hypodermic needle into the sciatic nerve when injecting quinine into the buttock, or, alternatively, by injecting so near the sciatic nerve as to injure it. The patient alleged that as soon as he got off the operating table he walked with a dropped right foot as a result of the injection and that the disability still continued (over three years later). In delivering judgment Lord Alness said that the vital

question concerned where the injection was made. Admittedly there was an area in the buttock within which such an injection might be safely administered. When the injection was administered to the respondent he felt a tingling sensation but nothing which he described as pain. Foot drop immediately followed. It was a fair inference, as the trial judge said, that the injection contributed to, if it did not cause, the foot drop. The appellant's theory, on the other hand, was that the respondent was suffering before the injection from latent alcoholic neuritis and that the alcoholic toxins in his system were lit up and precipitated by the shock of the injection. This theory was supported by three physicians, but one of them never saw the respondent and the other two saw him for the first time a week before the trial. The skill and experience of the appellant was certified by the trial judge. But one knew from experience in life that "familiarity breeds contempt" and that an ordinary practice was sometimes lacking in the constant care which the circumstances demanded. Moreover the respondent's theory offered a simple and convincing explanation of his plight, while the appellant's was speculative and difficult. The appellant did not treat the respondent for alcoholic neuritis, though he was addicted to spasmodic "sprees." None of the physicians who gave evidence for the appellant had experience of latent alcoholic neuritis precipitated by shock, and such a happening was admittedly rare. There was no evidence that the respondent suffered from latent alcoholic neuritis. The appeal was dismissed.

PARIS

(From Our Regular Correspondent)

March 22, 1936.

Acute Nephritis Following Injections of Staphylococcus Anatoxin

At the February 28 meeting of the Société médicale des hôpitaux, Tzanck reported excellent results following the use of Ramon's staphylococcus anatoxin in the treatment of superficial infections, such as furuncles, due to Staphylococcus aureus. At the same meeting a death due to hypersensitization to the anatoxin was reported by Duvoir. At the March 13 meeting Tzanck reported a case in which an acute nephritis appeared immediately after four injections of anatoxin had been given. A woman, aged 43, had suffered from furunculosis during the preceding three years. An intradermoreaction with the anatoxin presented a positive reaction of moderate degree. Four injections, the first of 0.25 cc. and the others of 0.5 cc., were given at weekly intervals. The furuncles disappeared and the patient was considered as being cured after the fourth injection. Fifteen days later the patient complained of edema around both ankles and a recurrence of furuncles in the region of the neck. Two days later a generalized edema appeared. The blood urea was 30 mg. per hundred cubic centimeters and the urine contained hyaline casts and much albumin. Following the use of a salt-free diet the edema disappeared and the albumin was greatly decreased. There was a history of the presence of albuminuria during two pregnancies but no further evidence of renal disease for ten years prior to the use of the anatoxin.

In all probability, as Ramon, Debré and their co-workers have pointed out, a specific allergy existed toward the staphylococcus toxin as the result of the chronic furunculosis. Tzanck has observed in ninety patients treated with the anatoxin that the reactions are more marked when the infection is of long duration. The reactions therefore are a question of individual tolerance. He believed that the anatoxin should be used only in cases of furunculosis that are very resistant to other methods of treatment, and in axillary adenitis, sycoses and carbuncles. One ought to watch for reactions in patients who have had urticaria, in patients with asthma and in those who have had evidences of a nephritis at some preceding period.

Osteomyelitis of Jaw Treated with Staphylococus Anatoxin

At the March 13 meeting a case of acute osteomyelitis of the upper jaw treated by operation and the anatoxin was reported by Bloch and his associates. The child was 7 months of age and presented on admission the clinical signs of a severe septicemia accompanied by local evidence of a maxillary sinusitis. The blood culture was positive for Staphylococcus aureus. The same organism was found in the pus of the infected sinus. The day following the operation 0.2 cc. of the anatoxin was given and a second dose five days later. Immediately after the latter, the infant's general condition improved rapidly and the blood culture was negative. Recovery was uneventful. A total of 2.85 cc. of the anatoxin was injected and one was able to note a progressive increase in the antitoxin content of the blood. The mortality of such cases in the past has varied from 30 to 50 per cent.

Study of Postoperative Pulmonary Complications

The pathogenesis of postoperative pulmonary complications is still being discussed by Professor Duval, surgeon, in collaboration with Professor Binet, physiologist, who submitted their first report at the February 12 meeting of the Académie de chirurgie. The working hypothesis employed by these investigators was that postoperative pulmonary complications were due to the toxic effects of polypeptides having their origin in the field of operation. The experiments were divided into two series, in the first of which dogs were sensitized as a preliminary measure and in the second of which the dogs were not subjected to any such preparation. The sensitizing injections were given subcutaneously and the anaphylactic injections (secondary in group 1 and primary in group 2) were given intravenously. The polypeptides were obtained by the action of phosphotungstic acid on finely divided dog's muscle after precipitation of the peptones with trichloroacetic acid. To exclude agonal pulmonary lesions and those dependent on the method of killing the animals, this was carried out by venesection and the lungs were removed by thoracotomy while the animals were still breathing. In the first group (preliminary sensitization), an injection of 0.1 Gm. of polypeptides per kilogram was given three weeks before; then the animal was anesthetized with chloralose and an intravenous injection of the same dose given.

The microscopic examination of the lungs revealed pulmonary lesions of two kinds: (*a*) apoplexy and infarction without vascular occlusion and (*b*) typical pulmonary atelectasis (collapse of the lung). The lung appeared to be the only organ that was involved. This can be explained by the fact that the pulmonary circulation is the first to arrest the polypeptides and seems to be particularly sensitive to them, a local state of allergy.

Although these experiments will not explain all pulmonary complications following operation, it is evident that these are not all due to the anesthetic or to an embolic process. There are two types of lesions which follow operations in an aseptic field and under conditions of rigid asepsis, even when no general anesthetic is given. These two types are (*a*) the infarct and (*b*) the collapse type. In the former, the surgeon is too apt to accept an embolic process as an explanation, even when no source of an embolism can be found.

Duval and Binet are of the opinion that these can be best understood as of anaphylactic origin. The same is true of the atelectatic (collapse) form of pulmonary complication. Intoxication by the polypeptides of autogenous origin which are a sequel of every operation can provoke the two types of pulmonary lesions, infarct and collapse.

Grégoire, in the discussion, stated that the experiments reported by Duval and Binet rendered plausible the view that

the lesion which is termed postoperative bronchopneumonia is probably an infarct due to the migration of polypeptides from the field of operation. Grégoire had obtained experimentally with the toxin of the bacillus of gas gangrene the same experimental results (intestinal and pulmonary infarcts) as he had formerly obtained with polypeptides.

Physician Killed by Brother of Patient

A surgeon, Dr. Taubmann of Paris, has just shared the unfortunate lot of others like Professor Pozzi and Dr. Guinard, who were killed by patients or by relatives of the latter. Dr. Taubmann had earned the respect of his colleagues and the gratitude of a large number of patients, both rich and poor. He had advised that an operation be performed. The patient, a young man, died on the table. His brother overheard a conversation during which some members of the hospital personnel criticized both the manner in which the operation was performed and the judgment of the surgeon. Without stopping to consider that such remarks were not justified, the brother called on Dr. Taubmann, whom he accused of causing his brother's death, and shot him. The medical societies will take part in the prosecution of the murderer and try to show that all reasonable skill and care were employed in the diagnosis and treatment of the case.

The lesson to be learned from the ending of what promised to be a brilliant career is that members of a hospital organization, whether associates, interns or nurses, should be most guarded in making any remarks so that they can be transmitted to relatives who attempt to judge a physician's or surgeon's acts without calm consideration of the fact that both conscience and experience have guided every step in the treatment.

BERLIN

(From Our Regular Correspondent)

Feb. 22, 1936.

Research on the Heredity of Inmates of Institutions

For the last year H. F. Hoffmann, professor in ordinary of psychiatry at Giessen, has pursued research studies on the heredity of some 600 juvenile delinquents of his own district (Giessen). Data concerning these delinquents cover the period from the enactment of the juvenile reform school law in 1887 to 1934. Ten thousand relatives of these juveniles have thus far been genealogically established. These data are of particular importance since the vast majority of former delinquents have today grown children of their own. (Fürsorge-Zöglingen are juvenile offenders committed to public industrial schools in the hope that their behavior may improve under the favorable influences of such surroundings.) A study of the descendants of eighty such former delinquents has yielded accurate but as yet incomplete data. This progeny present for the most part extreme types of asocial and antisocial behavior; a minority after temporary lapses have become socially useful and fit. One hundred and eleven juvenile delinquents of more recent times were direct descendants of the eighty original offenders. In many instances all the children of the probationer had been committed to reform schools. From the existing genealogic data, there may be perceived among the probationers a growing tendency to contract marriage or illicit relations with partners of low grade type. This trend is the more prevalent in families showing accumulated cases of juvenile delinquency. Thus throughout the group studied an interlocking relationship may be recognized of socially inferior families, which are distinguished in most cases by the large number of children. As might have been expected, Hoffmann found among the offspring of probationers and low grade partners numerous cases of serious asocial and antisocial behavior. Many of these descendants had criminal records. The "biologic-partner law" formulated by Stumpfl in connection with similar material can be verified throughout. The rule operates in reverse for those probationers whose offenses have been less serious and for whom favorable prognoses of return to social behavior have been made. This class of reformed inmates shows in the majority of cases an inclination to contract marriage with socially worthy partners. Their family histories too present little or no hereditary taint of natural inferiority or delinquency. The descendants of such probationers almost always show fairly stable characters and incontestable social adaptability. The present data are as yet incomplete. So far as can be seen at present, the social prognosis for a human being as well as the choice of a marriage partner stand in direct proportion to the incidence of serious character defects in his immediate family circle. Those probationers of markedly inferior stamp tend to mate with similar partners, and the children of such unions tend to develop a manner of life resembling that of the parents. The same holds true, but in reverse, for the milder type delinquents. For incontestable calculation the data now available must certainly be augmented.

Old and New Problems in Diphtheria

The meeting of the Berlin Pediatric Society (an organization the foundation of which was recently reported) was opened with a paper by Professor Opitz, director of a children's hospital in Berlin. According to statistics for the German reich, covering the last ten years, Germany is at present riding the crest of a diphtheria wave (a fact stated in several previous letters). As the result of numerous observations it may be inferred that climatic and racial factors play no part in the situation. The incidence has shifted from infancy toward school age. The clinical picture has been modified by the almost complete disappearance of croup on the one hand and by the more frequent appearance of different and more severe types of illness on the other. Toxic diphtheria has increased in a similar manner both in Europe and in North America. The more severe form the disease takes, the more severe its crippling effects. These appear in 1.3 per cent of mild, in 25 per cent of moderately severe and in 62.9 per cent of severe cases. Among the causes of the change in the pathologic characteristics of diphtheria cases may be mentioned the improvement in general hygienic conditions and, as an obvious factor in the disappearance of croup, more suitable nutriment for children (avoidance of overfeeding with milk). Why toxic diphtheria should be on the increase is not well understood. In many cases the initial stages of the disease are atypical, and the first important hours go by without a diagnosis being established; serotherapy is then attempted but it comes too late to be of any benefit. Constitutional predisposition to diphtheria has not been proved. Idiosyncrasies of the causative agents may possibly play a part in the genesis of the disease. The so-called grave (gravis) forms seem to preponderate in cases of toxic diphtheria. When in severe cases the disease is toxic from the beginning, an unusually rapid absorption of poison or some other toxic acidity in the somatic cells must be thought of. Finally let it be pointed out that, according to the modern view, diphtheria may be reckoned as a state of general illness wherein the tonsillar changes are only secondary phenomena conditioned by the elimination of bacilli.

Financial Aid for Impoverished Cancer Patients

More and more frequently one hears of steps being taken to facilitate the carrying out of therapeutic measures in cancer. Recently the Anticancer Federation of the Province of Hanover decided to further the campaign against cancer by extending financial assistance to impoverished and uninsured women. The nature of the assistance is as follows: Bed and care in a qualified institution is underwritten by the organization, the cost not to exceed 1.50 reichsmarks per diem. It is stipulated that the beneficiaries of this subsidy shall be women, especially

mothers, afflicted with mammary or abdominal cancer, whose sickness insurance (if they carry any) would not cover the entire cost. Further, the institution furnishing the treatment must assume one third of the daily cost of maintenance. Moreover, it has been possible for the organization, by the purchase of its own radium and by supplies lent it free of charge, to effect a reduction of 50 per cent in the cost of radiotherapy for the sickness insurance patients and for those less well off.

ITALY

(From Our Regular Correspondent)

Feb. 15, 1936.

Food Problems in Italy

A committee appointed for studying some of the feeding problems in Italy came to the conclusion that cereals are the most commonly used foods among Italians. Because certain nutritional factors are either insufficient or absent in cereals, the diet should have some additional foods. The following criteria are advisable in buying food for the family: to spend from 30 to 35 per cent of the allowance for cereals and vegetables, from 25 to 30 per cent for meat, milk and eggs, from 7 to 10 per cent for sauces and condiments, and from 10 to 20 per cent for fruits and potatoes.

Malaria in Nurslings

Dr. Gioseffi, in a recent lecture, spoke on malaria in nurslings, in reference to an epidemic of benign malaria which he treated several years ago and which included about 944 cases of primaveral malaria of the tertian type, five cases of the quartan type and nineteen cases of the estivo-autumnal type. Most of the patients were infants from 6 months to 1 year of age. In many cases the symptoms were atypical. Chills were replaced by coldness of the hands, feet and point of the nose and cyanosis of the lips. There was no fever, sweats were absent or localized to some parts of the body, and the spleen did not increase in size. Many infants showed nutritional disturbances (low weight) and paleness of the skin and mucous membranes instead of the specific malarial symptoms. As paleness may be due to improper feeding, existence of a previous disease or congenital syphilis, it is important to consider the size of the spleen in evaluating the symptom. Treatment consisted in the administration of quinine tannate in chocolate drops or as an emulsion in milk. The speaker made a more detailed study of the disease in thirty-seven infants of the group. Plasmodium vivax was found in the blood of all infants, except in two cases in which parasites of the quartian type were found and one case in which parasites of the estivo-autumnal type were found. The spleen could be felt beyond the ribs from the beginning of the disease in 46 per cent of the cases. In the remaining infants splenomegaly made its appearance later, when the infants reached about 1 year of age. The repeated examination of the blood of all infants in the group for several months after discontinuation of the treatment was negative for malarial parasites. Nine infants died (24.3 per cent) from other causes than malaria at a time when malarial parasites were no longer present in the blood, as proved by repeated examinations. Malarial parasites were no longer present, either, in the blood of eighteen infants in the remaining group of twenty-five who are living and who were frequently seen for three years after discontinuation of the treatment. No recurrences happened in infants of this group. Recurrences took place in the rest of the cases, owing either to lack of cooperation of the mothers, who failed in giving their babies quinine for as long as the physician advised, or to a new contagion from domestic malarial foci. The protection of babies by covering their cradles with netting gave satisfactory results in preventing the contagion.

Italian Surgeons in International Congress of Surgery

Some Italian surgeons read papers at the International Congress of Surgery, recently held in Cairo. Professor Donati, clinical surgeon of the University of Milan, spoke on surgery of the parathyroids. He emphasized the importance of the parathyroids in the metabolisms of calcium, phosphorus and magnesium, on the one hand, and of the development of modern knowledge on phosphatases, parathyroid extract and vitamin D, on the other. With this knowledge the syndromes of hyperparathyroidism and dysfunction of the parathyroids have been discovered. Hyperplasia of the parathyroids, especially focal hyperplasic adenoma of Churchill's type, which the speaker names parastruma, is a condition in which surgical treatment is indicated. Operation is rarely indicated in hypoparathyroidism, because of the inconstancy of the results from the implantation of parathyroid grafts. Hyperparathyroid syndromes include not only those syndromes of the group of Recklinghausen's osteosis which represent an advanced stage of the disease but also hyperparathyroidism with either renal or digestive disturbances which is entirely independent of osteoporosis. The diagnosis of hyperparathyroidism can be made only by study of the mineral metabolism of the patient. Professor Donati said that there are certain cases of osteitis deformans (Paget's disease) in which the biochemical disequilibrium shown by the patient originates in changes in the parathyroid functions. The speaker's opinion on the importance of parathyroidectomy in chronic arthropathies, scleroderma, arteritis and angiospastic syndromes was reserved. He concluded that the modern work through which the syndromes of hyperparathyroidism have been known have marked at the same time the limitations of surgical treatment. Satisfactory results from ablation of the parathyroids can be expected only in cases of hyperparathyroid hyperplasia or adenoma.

Professor Chiasserini of Rome spoke on surgery of the lumbar sympathetic. He prefers operations on the central sympathetic rather than periarterial sympathectomy. He pointed out the importance of the spastic factor in the development of disturbances of the peripheral circulation and the necessity of evaluating the efficiency of the collateral circulation. He does not favor arteriography as a diagnostic method. As to the operation, he prefers ganglionectomy by the paraperitoneal route. His experience includes fifty-two ganglionectomies with six deaths. None of the patients on whom he has operated during the last two years have died. The operation was performed in thirty-five patients with grave disturbances of circulation of the extremities, caused by thrombo-angiitis or arteriosclerotic thrombosis. The speaker followed up thirty-one of these patients and found that nineteen are still cured from three to five years after the operation, four have experienced great improvement, and in four the improvement was only fair and they had then a secondary amputation; four of the six deaths corresponded to this group.

Personal Items

Prof. Luigi D'Amato, instructor in pathology in the University of Naples, has been appointed professor of clinical medicine in the university. Some of his important contributions to medicine are on disturbances of the nitrogen and fat metabolism in diabetes mellitus, changes of the pancreas in cirrhosis of the liver, the rôle of chronic toxic conditions in pathogenesis of atheromatous degeneration, a hemoclastic reaction for the diagnosis of syphilis, tuberculosis and some other infections, the diagnostic significance of the transmission of the laryngotracheal murmur audible at the clavicle as a sign of presence of diseases of the mediastinum, and the paradoxical phenomenon of the displacement of vertebral dulness in pleural effusion.

Prof. Leonardo Diminici, instructor in clinical surgery in the University of Perugia, has been appointed professor of surgery in the University of Naples. Some of his important

contributions to medicine are on renal functions after nephrectomy and in certain diseases, plastic surgery of the ureter, cysts of the kidney, surgery of the urinary tract, changes of the liver parenchyma in acute cholecystitis, choleperitoneum, and pathology of the heart and the blood vessels. He also made important contributions to war surgery during 1915 and 1916.

RIO DE JANEIRO

(From Our Regular Correspondent)

Feb. 15, 1936.

Climate and the Treatment of Pulmonary Tuberculosis

Dr. Aloysio de Paula, in a recent lecture before the Faculty of Medicine of Rio de Janeiro, said that the influence of climate on the evolution of pulmonary tuberculosis has been recognized for a long time. It was believed at first that the climate favorable for the evolution of tuberculosis was that of the coasts. Lately it has been discovered that simply a change of climate, such as that experienced in cold countries, produces a beneficial and stimulative effect on the inhabitants as well as a favorable effect on pulmonary tuberculosis. Climates have been divided into two large groups: (1) stimulative climates, among which one may consider those of high altitudes and of cold countries, in which climatic changes of seasons are marked, and (2) even climates, in which the climatic variations are slight. Favorable results can be obtained from an efficient treatment in pulmonary tuberculosis in any good climate. The influence that climate has on the evolution of pulmonary tuberculosis may be explained by either a general action on the organism or by a local action on the tuberculous lesions. When a tuberculous patient first reaches a high altitude he has frequently an initial aggravation, which represents a focal reaction. Amrein compares this reaction to a tuberculin reaction. The climatic shock may be either useful or harmful to the tuberculous lesion. It is possible that intense climatic variations may produce a local irritation in the tuberculous foci and that the reaction may favor the evolution of certain types of pulmonary tuberculosis. The author concluded by saying that climate is a secondary factor in the treatment of pulmonary tuberculosis but may possibly be the determining factor in the cure of the patient. In Rio de Janeiro the proper treatment of the disease has resulted in cures as good as those reported from the best climatic stations in the country. The speaker advised a careful study of the different climates in Brazil in order to establish their technical, social and psychologic indications for the various types of tuberculosis.

Elevation of Diaphragm in Pulmonary Tuberculosis

Dr. A. Ibiapina, assistant in the clinical department of Professor Austregesilo, in a recently published article on the mechanism of elevation of the diaphragm in pulmonary tuberculosis and in phrenicectomy, reached the following conclusions: The elastic tension of the lung is the force that causes elevation of the diaphragm. Spontaneous elevation of the diaphragm is due to an increase of the elastic function of the lung originating in the condensation of the pulmonary lesions and, in certain cases, to the presence of either paresis or paralysis of the phrenic nerve. The greater the extension of the pulmonary lesions, the more intense the elastic tension of the parenchyma of the lung and the higher the elevation of the diaphragm. High elevations of the diaphragm, following phrenicectomy, correspond to extensive pulmonary lesions and to intense elastic tension of the lung, while slight elevations, after the same operation, correspond to small pulmonary lesions and not intense elastic tension of the lung. A high elevation of the diaphragm by phrenicectomy is not sufficient in certain cases to neutralize the preexistent high elastic tension of the lung in such a manner as to cause the organ to be left in hypotension. That is why the lesions in certain cases of pulmonary tuberculosis continue active after phrenicectomy in spite of the fact that the operation results in a high elevation of the diaphragm.

CAPE TOWN

(From Our Regular Correspondent)

Feb. 17, 1936.

The Annual Medical Congress

The medical congress was held at Grahamstown, the old Settler City in the eastern part of the Cape Province, last October. It was well attended and was memorable for the discussion that took place on the question "Is the white race in South Africa degenerating?" One of the most instructive papers in this symposium was read by a practitioner of forty years' standing, Dr. J. Jurriaanse of Ermelo, Transvaal. He pointed out that "a certain class of whites are living on a low economic level, in some places even below that of the natives." More to the point was his reminder that, by differentiating between the native and the white man on economic and health grounds, the white settler was laying up trouble for himself, a warning of which the public has not taken the least notice. The lay press, indeed, gave little publicity to a debate that told so luridly of the evils that arise from fostering one section of the population at the expense of other sections. Scientifically, the main question at issue could not be answered, for the available data do not make it possible to say whether white civilization in South Africa is dying or developing. There is no inherent reason why the white settler should not progress in certain parts of the country, but the facts are that the old families are steadily dying out and that the physique and morale of the younger generations are not what they used to be. Factors that have probably nothing whatever to do with climate or subsoil may be responsible for this alarming condition, but so far no one has been able to collate these factors.

Treatment of Spider Poisoning

Like America, South Africa is plagued with its own special species of Latrodectus spiders, which annually bite folk chiefly engaged in agricultural pursuits. Recently M. H. Finlayson has published a paper summing up the recorded evidence of poisoning by the bites of Latrodectus concinnus and L. indistinctus, which in this country replace L. mactans of America and L. hasseltii of Australia. The symptoms caused by their bites are in general similar to those reported in America and Australia. Severe cramplike pain, with abdominal rigidity, cyanosis, increased reflexes and a sharp rise of temperature are almost constant features. Death is from cardiac or respiratory failure. In the treatment, potassium permanganate is used locally, with atropine and morphine, salines by rectum, and solution of posterior pituitary and epinephrine to combat shock. The antiserum to the venom of L. concinnus does not completely neutralize the venom of the other species, but experiments show that the antiserum of L. indistinctus neutralizes both indistinctus and concinnus venom, and it appears, therefore, to be the best and most suitable weapon in the treatment of latrodectemia.

Deaths in the Profession

During the last few months the medical profession in South Africa has lost more than a dozen of its older members through death. Dr. A. D. Ketchen, one of the oldest medical consultants, died of heart disease. Dr. H. Pellissier, a newly qualified intern, succumbed to septicemia. Dr. W. Steuart, a pioneering radiologist, who was both a medical man and an electrical engineer, Dr. J. C. MacNeillie, an old member of the legislature, Dr. Kerr Cross, a veteran missionary practitioner who had been with Gordon in the Soudan, and Dr. Targett Adams, a pioneer in public health administration and bacteriology, are others whose loss is deplored.

Marriages

MARGARET H. NELSON, Madison, Wis., to Mr. William A. Wickers of San Juancito, Honduras, Central America, January 25, at Des Moines, Iowa.

GEORGE S. MAHON, Nashville, Tenn., to Miss Margarette Elizabeth McCaslin of Massillon, Ala., in Franklin, Tenn., January 4.

EMMETT CARLYSLE MATTHEWS, Waynesboro, Va., to Miss Mary Hodnett of Chatham, February 7.

* * *

Deaths

William Fletcher Knowles ✠ Brookline, Mass.; Harvard University Medical School, Boston, 1885; member of the American Laryngological, Rhinological and Otological Society; fellow of the American College of Surgeons; at one time instructor in otology at his alma mater; served during the World War; consulting aural surgeon to the Massachusetts Eye and Ear Infirmary, and the Massachusetts General Hospital, Boston; consulting otolaryngologist to the Boston Psychopathic Hospital and the Newton (Mass.) Hospital; aged 74; died, February 12.

Wildy Harding Graves ✠ Murray, Ky.; University of the South Medical Department, Sewanee, Tenn., 1899; Hospital College of Medicine, Louisville, 1900; secretary of the Calloway County Medical Society; formerly county health officer and member of the county board of health; member of the city council; on the staff of the William Mason Memorial Hospital; aged 62; died, March 9, of coronary thrombosis.

Harry S. Falk ✠ Erie, Pa.; Medico-Chirurgical College of Philadelphia, 1899; formerly coroner of Cameron County; medical director of the Louise Home Sanatorium; on the staffs of the Erie Infants' Home and Hospital and St. Vincent's Hospital, Erie, and the Grand View Sanatorium, Oil City; aged 61; died, February 12, of coronary occlusion.

John Cutting Berry, Worcester, Mass.; Jefferson Medical College of Philadelphia, 1871; member of the Massachusetts Medical Society and the New England Ophthalmological Society; formerly a medical missionary; on the staff of the Worcester City Hospital; aged 89; died, February 8, of myocarditis and bronchopneumonia.

Fletcher Greene Sanborn, Arcadia, Calif.; University of California Medical Department, San Francisco, 1901; member of the Hawaii Territorial Medical Association; served during the Spanish-American and World wars; aged 67; died, February 8, in the Hollywood Hospital, Los Angeles, of myocarditis and coronary sclerosis.

Samuel R. Ward, Richmond, Ill.; Georgetown University School of Medicine, Washington, D. C., 1868; member of the Illinois State Medical Society; formerly mayor, health officer and member of the school board; aged 93; died, January 18, as the result of a fracture of the hip received in a fall.

George Richard Little, Schaghticoke, N. Y.; University and Bellevue Hospital Medical College, New York, 1899; for many years president of the board of education; on the associate staff of the Leonard Hospital, Troy; aged 58; died, January 18, of cerebral hemorrhage and arteriosclerosis.

George Lincoln Bunnell, Shelton, Conn.; Cornell University Medical College, New York, 1900; member of the Connecticut State Medical Society; served during the World War; on the staff of the Laurel Heights State Tuberculosis Sanatorium; aged 65; died, March 8, of myocarditis.

Frank Horace Clapp, North Grafton, Mass.; University of Vermont College of Medicine, Burlington, 1888; member of the Massachusetts Medical Society; for many years member of the school committee and board of health of North Grafton; aged 74; died, February 26, of arteriosclerosis.

William Clement Gibson, Jefferson Barracks, Mo.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1904; on the staff of the Veterans Administration Facility; aged 60; died, February 20, in the Veterans Administration Facility, West Los Angeles, Calif.

Homer Chester Blough ✠ Bens Creek, Pa.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1926; aged 42; on the staff of the Mercy Hospital, Johnstown, where he died, February 22, of an accidental overdose of phenobarbital.

Robert Worth Moore, Fort Worth, Texas; Fort Worth School of Medicine, 1906; member of the State Medical Association of Texas; at one time lecturer on osteology and embryology at his alma mater; aged 60; died, January 23, in a local hospital, of pneumonia.

Charles Edward Ryder ✠ Medical Inspector, Commander, U. S. Navy, retired, Brooklyn; Harvard University Medical School, Boston, 1898; entered the navy in 1903 and retired in 1930 for physical disability; aged 61; died, January 12, of coronary disease.

William James Risen, Hooker, Okla.; Hospital College of Medicine, Louisville, Ky., 1890; member of the Oklahoma State Medical Association; county superintendent of public health; aged 71; died, January 18, in Liberal, Kan., of heart disease and nephritis.

Herman Berg Campbell ✠ Newark, N. J.; University of Pennsylvania Department of Medicine, Philadelphia, 1902; on the staffs of St. Michael's Hospital, Newark, and the Orange (N. J.) Memorial Hospital; aged 57; died, February 5, of pneumonia.

John Cohen ✠ New York; Harvard University Medical School, Boston, 1924; served during the World War; aged 45; on the staffs of the Beekman Street Hospital, Montefiore Hospital and the Mount Sinai Hospital, where he died, January 24.

Leonard Jarvis ✠ Claremont, N. H.; Harvard University Medical School, Boston, 1882; past president of the Sullivan County Medical Society; on the staff of the Claremont General Hospital; aged 83; died, January 28, of cerebral hemorrhage.

Charles Theodore Stovall, Vienna, Ga.; Atlanta Medical College, 1879; formerly mayor of Vienna, and postmaster; aged 78; died, January 22, in a hospital at Macon, as the result of burns received when his bed caught fire from a warming pad.

Ida E. Blackburn, Greensburg, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1895; formerly president of the school board; for many years on the staff of the Westmoreland Hospital; aged 73; died, February 21, of heart disease.

Joseph Benjamin Elliott ✠ Falkville, Ala.; University of Alabama Medical Department, Mobile, 1905; formerly secretary of the Morgan County Medical Society; aged 55; died, February 12, in a hospital at Decatur, of pneumonia.

Frederick Warder Townsend, Pacific Palisades, Calif.; Ohio Medical University, Columbus, 1895; veteran of the Spanish-American and World wars; aged 63; died, January 22, in St. Luke's Hospital, Spokane, of cerebral hemorrhage.

Francis George Leonard ✠ Cleveland; Starling-Ohio Medical College, Columbus, 1910; fellow of the American College of Surgeons; visiting surgeon to St. Luke's Hospital; aged 53; died, February 6, of coronary thrombosis.

Ralph Warner Ellis ✠ Worcester, Mass.; Harvard University Medical School, Boston, 1918; medical director of Clark University; on the staff of the City Hospital; aged 44; died, March 3, of wounds self inflicted with a scalpel.

Samuel John Joseph Kelly, Philadelphia; Medico-Chirurgical College of Philadelphia, 1899; for many years medical inspector for the board of health in the parochial schools; aged 61; died, January 18, of cerebral embolism.

Squire Raymond Boggess, Lawrenceburg, Ky.; University of Louisville Medical Department, 1921; member of the Kentucky State Medical Association; county health officer; aged 39; died, February 14, of cerebral hemorrhage.

Cuvier L. Clover ✠ Knox, Pa.; Bellevue Hospital Medical College, New York, 1891; past president of the Clarion County Medical Society; aged 70; died, February 22, in a hospital at Orlando, Fla., of arteriosclerosis.

Jacob Brin, St. Louis; Julius-Maximilians-Universität Medizinische Fakultät, Würzburg, Bavaria, Germany, 1892; aged 69; died, February 19, in the Jewish Hospital, of cerebral thrombosis and arteriosclerosis.

William Milton Dill, Erie, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1909; aged 56; died, January 18, in St. Vincent's Hospital, of carcinoma of the seminal vesicle and prostate.

James Mossop Cornely, Madera, Pa.; Jefferson Medical College of Philadelphia, 1907; member of the Medical Society of the State of Pennsylvania; aged 58; died suddenly, February 5, of heart disease.

Edward Roscoe Merrill, Santa Barbara, Calif.; Harvard University Medical School, Boston, 1885; member of the California Medical Association; aged 77; died, recently, of endocarditis and myocarditis.

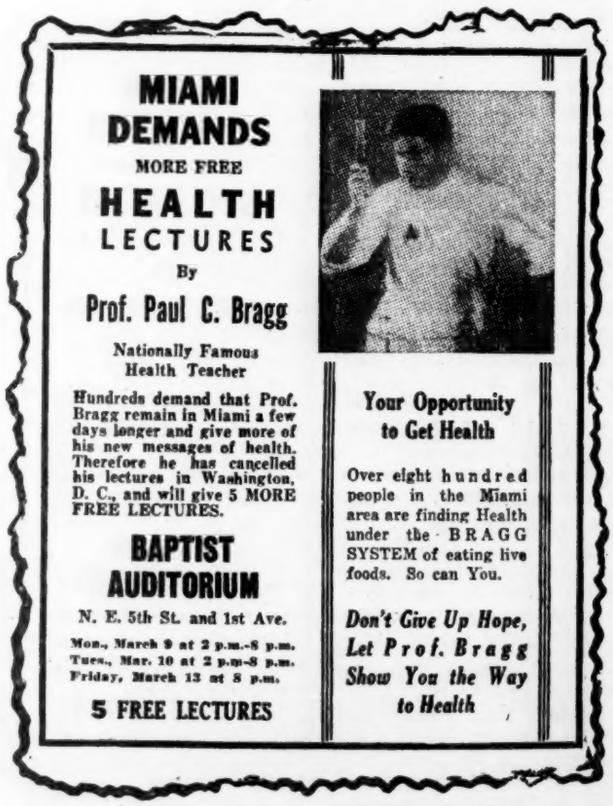
Bureau of Investigation

"PROF." BRAGG AGAIN

Is Washington's Loss Miami's Gain?

For years it has been known that those sections of the country in which elderly people and invalids congregate have more than their share of quacks and faddists. For this reason southern Florida is beginning to challenge the eminence of other resorts for this doubtful honor. This winter Miami has been visited by the quack who calls himself "Professor Paul C. Bragg." Readers of THE JOURNAL may remember what has been published regarding Bragg, who was described as a "food faddist and sexual rejuvenator." Bragg is one of those ignoramuses with a flair for public speaking who confer on themselves ornate titles and give "free lectures," which are really come-on advertisements for the books, the nostrums and the so-called private courses that they have for sale.

Bragg has worked particularly along two lines: food fads and sex, two subjects that are perennially popular with the type of


MIAMI DEMANDS
MORE FREE
HEALTH LECTURES
By
Prof. Paul C. Bragg
Nationally Famous Health Teacher
Hundreds demand that Prof. Bragg remain in Miami a few days longer and give more of his new messages of health. Therefore he has cancelled his lectures in Washington, D. C., and will give 5 MORE FREE LECTURES.
BAPTIST AUDITORIUM
N. E. 5th St. and 1st Ave.
Mon., March 9 at 2 p.m.-8 p.m.
Tues., Mar. 10 at 2 p.m-8 p.m.
Friday, March 13 at 8 p.m.
5 FREE LECTURES
Your Opportunity to Get Health
Over eight hundred people in the Miami area are finding Health under the BRAGG SYSTEM of eating live foods. So can You.
Don't Give Up Hope, Let Prof. Bragg Show You the Way to Health

Reproduction (reduced) of one of Bragg's advertisements in a Miami paper.

intelligence that is impressed by charlatans of the Bragg type. Following the "free lectures," it has been Bragg's habit to take up collections, offer his books and "patent medicine" for sale as well as suggest that the audience subscribe for his special classes.

Bragg seems to have found Miami a lush field this winter, but toward the end of the season he began to talk of going back north. A Miami paper, however, in its issue of March 8 carried a display advertisement in which it was stated that "Miami Demands More Free Health Lectures by Professor Paul C. Bragg, Nationally Famous Health Teacher." The advertisement stated further that because of the hundreds of demands that Bragg should remain in Miami a few days longer he had "canceled his lectures in Washington, D. C.," and would give five more "free lectures."

Bragg's cancellation of his lectures in Washington, D. C., may have been due to the fact that suckers were still biting in Miami; but it is quite as probable that his action was at least partly predicated on the fact that when he conducted his lectures in Washington a year ago he was charged with practicing the healing art without a license, found guilty and fined a hundred dollars. He violated the law of the District of Columbia by attempting to diagnose diseases, by prescribing a "patent medicine" of his own devising and by attempting to relieve certain diseases. He is estimated to have taken about $7,000 out of Washington, for he charged $20 a person for a series of six so-called classes which some 350 persons attended. Observers from the office of the Commission on Licensure and from the District Medical Society attended Bragg's "classes" and obtained enough evidence to bring action against him in the police courts.

Correspondence

THE CORONER SYSTEM

To the Editor:—The controversy concerning the coroner system that has been going on in England during the last two years is the inevitable protest of progress against an anachronism. Antiques belong in museums and should not continue to be parts of the government of everyday modern life. The compromise report of a royal committee appointed to correct faults in the coroner system has met with the disapproval of the British Medical Association, as was to be expected (THE JOURNAL, March 21, p. 1018).

The coroner system originated in the early period of Anglo-Saxon history. As the name implies, the coroner, or "crowner," was originally the personal representative of the crown in judicial procedures, but his duties came to deal particularly with investigations of deaths by violence. This country inherited the coroner system through the colonial and provincial laws that were adopted into its judicial system on the founding of the United States. Under the primitive conditions that existed before police and judicial systems were developed, the coroner and his jury fulfilled a useful purpose.

Just as scandals arising out of the character of the system and its methods gave rise to the present controversy in England, so in Massachusetts in 1877 scandals caused the Massachusetts Bar Association and the Massachusetts Medical Society in joint action to investigate the system. Their studies disclosed that when a death arose from violence two basic questions had to be considered: 1. What caused the death? This could be answered only by medical investigation. 2. Who caused the death? This was a matter for the police and the courts to determine. In answering these questions the coroner was called on to straddle the functions of two professions, medicine and law. Moreover, the antiquated machinery which he governed, creaking with age, operated so slowly that modern police and judicial systems made its findings ineffective and its efforts unnecessary. Under modern conditions the coroner is literally a fifth wheel on the judicial coach, and an unnecessary expense.

The Massachusetts medical examiner system (Leary, Timothy: The Medical Examiner System, THE JOURNAL, Aug. 20, 1927, p. 579; Methods and Problems of Medical Education, series 9, Rockefeller Foundation, New York, 1928), evolved out of the joint studies of the bar association and the medical society, abolishes the coroner, places the responsibility for determining the cause and manner of deaths by violence on medical examiners, and refers to the police and the courts the problem of finding and prosecuting the persons committing the crimes. The system has been practiced now for fifty-eight years. It has been adopted in part in all of the New England states excepting Vermont (which has no medicolegal system), in the city of New York, and in Essex County, N. J. The medical examiner system makes for simplicity, utility and efficiency.

TIMOTHY LEARY, M.D., Boston.
Medical Examiner for Suffolk County.

"TREATING TUBERCULOSIS IN GENERAL HOSPITALS"

To the Editor:—Your special issue on "Tuberculosis" is of special significance in my state, where the Department of Institutions has recently launched a broader program in an effort to control this disease.

A little more than three years ago, the Central Maine General Hospital cooperated with the state department of institutions in providing beds for convalescent tuberculosis patients, thus filling an unoccupied space in our hospital and making room in the sanatoriums for a large waiting list.

With the advance of surgical procedures in treatment of tuberculosis, and with the installation of such equipment as is necessary to carry on medical asepsis in tuberculosis wards, and the engaging of nurses and supervisors who are properly trained, we have admitted surgical patients whose sputum has been positive.

A year ago we opened another pavilion for the treatment of fifteen surgical patients in private rooms. A tuberculosis staff has been organized having a surgeon in charge and an associate surgeon, and a physician in charge and an associate physician.

This program has brought the tuberculous patient back into the field of general medicine. As I see it, there is a marked increase in the interest which the general practitioner in this community has in this unnecessary disease. Outpatient clinics have been established for diagnosis. I am sure that a number of cases have been found at a much earlier date because the members of our staff are somewhat tuberculosis conscious. The program has also made it possible to treat some private patients who would otherwise have been treated as state cases in the sanatoriums.

As I see it, the trend, as outlined in the Tuberculosis number "Treating Tuberculosis in General Hospitals" is a healthy one and a much better solution for the control of this disease than state medicine ever can be. If the several states subsidized tuberculous patients in general hospitals and permitted those patients who pay a certain minimum charge to be treated as private patients by a physician of their choice, the patients, the hospital and the physician would be benefited.

JOELLE C. HIEBERT, M.D., Lewiston, Maine.
Superintendent, Central Maine General Hospital.

STATUS OF ALLERGY TEACHING

To the Editor:—May I be permitted to comment on an article by Dr. I. Harrison Tumpeer, "Status of Allergy Teaching as indicated in Medical School Announcements" (THE JOURNAL, Aug. 24, 1935, p. 744)?

It is fallacious to assume that because allergy is not specifically listed in the catalogue of a medical school it is therefore not taught at all or at most presented inadequately. It seems strange that this did not occur to Dr. Tumpeer when sixty out of seventy-nine medical schools are so indicted.

For example, in the University of Pennsylvania the teaching of allergy has had what even an "allergist" must consider an adequate presentation of the subject for undergraduates. There are teaching hours to second, third and fourth year classes by members of the staff of the Allergy Section of the Division of Internal Medicine, a section which was begun in 1920.

True, our catalogue does not mention teaching hours in allergy. But neither does it mention teaching hours in numerous other subdivisions of the field of internal medicine. I assume, of course, that allergy is primarily a part of the field of internal medicine: an assumption that has the sanction of the Council on Medical Education and Hospitals, which has so ruled in the matter of certification of specialists.

Dr. Tumpeer seems to realize the weakness of his position when he concludes: "A supplementary study may well be undertaken by the questionnaire method to fill in the details omitted from the catalogues." Such a study has actually been carried out by a committee of the Association for the Study of Allergy and gives quite a different picture.

That the Council on Medical Education and Hospitals or the Association of American Medical Colleges shall inform itself on the details of allergy teaching in medical schools is admitted, just as they should be familiar with the attention paid to other subdivisions of internal medicine. But that these detailed data appear in a medical school catalogue is both unnecessary and unpractical.

RICHARD A. KERN, M.D., Philadelphia.
Professor of Clinical Medicine and Chief of the Allergy Section of the Division of Internal Medicine, Hospital of the University of Pennsylvania.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

OCCUPATIONAL HAZARD TO GASOLINE SERVICE STATION ATTENDANTS

To the Editor:—A white man, aged 29, single, a gasoline service station attendant, has noticed a gradual, progressive impairment of vision of the left eye for the past three years. There is no associated headache or pain of any sort. For a short time about two and a half years ago he complained of diplopia but has not noticed this since. For the past two or three years he has observed, at times, slight difficulty in starting to urinate, but this has not been a constant complaint. On several occasions he has been subject to a tic involving the muscles of the left cheek. In the past two months there has been a definite generalized weakness. The patient has worked as gasoline station attendant for the past eight years, dispensing gasolines treated with tetra-ethyl lead. About two months ago he was given a thorough examination. He appeared well developed and well nourished. Vision of the right eye was 20/40 and of the left eye 8/100. The eyes were entirely negative to external examination, the tension, pupillary reaction and extra-ocular movements being normal. Ophthalmoscopic examination showed definite pallor of the temporal sides of both disks in the area of the papillomacular bundle. This was more marked on the left than on the right side. There was no evidence of inflammatory disease in the fundi. The visual fields were essentially normal in outline for white and colors, but there was a relative central color scotoma in the right eye and an absolute color scotoma in the left eye. The physical examination was essentially negative. The blood Wassermann reaction was negative. The spinal fluid had 20 cells, an increased Pandy test, increased protein content and a mastic colloidal gold curve and negative Wassermann reaction. The hemocytologic examination was negative throughout. The blood chemistry was normal except for the lead content of the blood, which was 0.08 mg., the normal being, according to standards consulted, 0.05 mg. and the high level of 0.1 mg. being found in acute lead poisoning. The neurologic examination was essentially negative except for the ophthalmologic manifestations and very weak abdominal reflexes. Examination of the nose, throat and accessory nasal sinuses showed a questionable infection of the ethmoidal cells, although the patient had an acute cold at this time. The roentgenograms of the teeth, sinuses and sella turcica were entirely negative. What conditions based on the history and examination should be included in the differential diagnosis? Does the negative blood picture exclude chronic plumbism? Can these conditions be explained on the basis of chronic plumbism? Can the spinal fluid picture be explained on the basis of chronic lead poisoning? Can the disk changes be explained by chronic plumbism? What is the most likely underlying pathologic condition in this case? If this communication is published, please omit name.

M.D., New York.

ANSWER.—The ordinary operations about a filling station provide no great exposure to any of the several harmful substances that may be dispensed. Causes unrelated to work are accepted with greater probability as responsible for the condition described. However, on the assumption that this condition represents an occupational disease, consideration is given to four possible causes: (1) tetra-ethyl lead, (2) methyl alcohol, (3) carbon tetrachloride and (4) gasoline (naphtha, benzine). The differential diagnosis here considered does not extend beyond these substances.

1. The possibilities of lead poisoning from casual contact with tetra-ethyl lead in gasoline have been exaggerated. The quantity of this substance per gallon of gasoline is so low as to be toxicologically insignificant. Both in the United States and England, elaborate studies have been conducted among gasoline station attendants seeking to establish evidence of injury from

lead in gasoline. No such evidence has been found, and it is believed that in this case industrial exposure to lead at a filling station may be denied.

2. Methyl alcohol (methanol, wood alcohol) is widely used in some states as a preventive of freezing and is dispensed at gasoline stations. This possibly should be considered in differential diagnosis, but from the manner of dispensing wood alcohol for antifreeze purposes and the relative infrequency of this procedure, no marked attention need be extended.

3. In this day and time many gasoline stations dispense dry cleaning agents, chiefly derived from petroleum, although some blends may contain a percentage of carbon tetrachloride to render the mixture less inflammable. If actual exposure took place, carbon tetrachloride poisoning might arise in which involvement of the posterior portion of the eye might occur, such as described by Wirtschafter. Since these dry cleaning preparations are ordinarly dispensed in sealed tins, this hazard is discounted.

4. Evidence is accumulating that light petroleum derivatives are capable of producing a bizarre chronic state, involving especially the central nervous system. This condition has attracted much less attention than the states arising from exposure to benzene or toluene. Explanation possibly may be found in the marked lack of uniformity in manifestation. This chronic naphtha poisoning is quite apart from the well known "naphtha jag," which closely resembles alcoholic intoxication and which condition promptly follows exposure through inhalation to any of the solvents derived from petroleum. Chronic naphtha poisoning more often than not simulates multiple sclerosis. Psychotic states may be associated. Occasionally manifestations may be limited to a single item, such as perversion of taste, retrobulbar neuritis or loss of memory. Series of cases have been described by Hayhurst and by Hamilton. Retrobulbar neuritis has been described by Peters. It is impossible to present a typical case because of the lack of uniformity of symptomatology, but from the aggregate of many cases so diagnosed it may be pointed out that from time to time there arises muscular weakness with tremors, loss of reflexes, particularly the abdominal reflexes, tics, mental confusion, epileptoid seizures, loss of memory, drowsiness, changes in disposition, peripheral neuritis, and paresthesias. Jaundice is fairly common during earlier stages and so also are gastro-intestinal upsets, urinary disturbances, occasionally albuminuria and anemia. In the absence of proved marked and extended exposure, a diagnosis of chronic naphtha poisoning is unwarranted.

TEST FOR OCCULT BLOOD

To the Editor:—There is a test for occult blood the solution for which is made of phenolphthalein, some sodium salt, I think, and granulated tin as a catalyzer. The material to be tested is treated with hydrogen peroxide before being layered with this solution. Will you kindly state the details of the preparation of the solutions for this test and for conducting the test? Also please state the limitations of this test. What name is usually given to it?

GRADE EDWARDS, M.D., Ferosepur, Punjab, India.

ANSWER.—The phenolphthalin test for occult blood was originally employed by Meyer (*München. med. Wchnschr.* **50**:1489, 1903) and was so improved by Kastle and Amoss (Bull. 31, Hygienic Laboratory, U. S. P. H. & M. H. S., 1906) that it is one of the most delicate tests for blood. Its limit of delicacy is about 1 part of blood in 8 million of water. The hemoglobin acts as an oxygen carrier, the active oxidizing agent being hydrogen peroxide.

Phenolphthalin is the reduction product of phenolphthalein, produced by the action of zinc in alkaline solution. When oxidized in alkaline solution it is converted into phenolphthalein with the formation of an intense red color. The reagent may be purchased or may be prepared as follows: Phenolphthalein is dissolved in an excess of 30 per cent sodium hydroxide solution and boiled with an excess of zinc dust until a few drops of the strongly alkaline liquid no longer gives a red color after neutralization with hydrochloric acid and sufficient alkali to alkalinize the solution. The solution is then decanted from the zinc dust, and the phenolphthalein is precipitated by the addition of hydrochloric acid. The precipitate is collected on a filter and purified by repeated crystallization from water and alcohol. This is continued until a white crystalline powder is obtained free from phenolphthalein (shown by the absence of a red color on addition of alkali). The powder is dried, contact with metallic surfaces being avoided. The powder should be kept in a tightly stoppered bottle in a dark place.

For testing for occult blood the solution is prepared as follows: Mix a slight excess of phenolphthalein, thus prepared, with 1 cc. of tenth normal sodium hydroxide solution and a few cubic centimeters of redistilled water, shake and filter. To the filtrate add 20 cc. of tenth normal sodium hydroxide solution, 0.1 cc. of 3 per cent hydrogen peroxide solution and make up to 100 cc. To one part of an aqueous solution of a suspected stain, or of secretion or excretion to be tested, add 2 parts of the reagent and allow to stand for a few minutes. In the presence of blood a pink to red color appears, the intensity depending on the amount of blood.

This reaction is retarded by extracts of various tissues or secretions of the body. Boiling the solutions before applying the test removes most of the interfering factors. If a secretion is treated with a thick cream of aluminum hydroxide suspension, the precipitate will carry down the blood pigment and concentrate it. A small amount of this precipitate (from urine, feces suspension, saliva, exudates) will yield a decided red color when added to 2 cc. of the reagent. This test is especially valuable for the detection of blood in all secretions and excretions (which are boiled before the test is applied) and particularly in the examination of suspected stains for forensic purposes.

DISTURBANCES OF INTERNAL EAR

To the Editor:—During the past two months, I have had two cases which have puzzled me very much. The onset of the illness begins like a common cold. After about two hours the patients become nauseated, vomit and have severe vertigo, which is subjective. This comes on if they turn in bed; in both cases it has been when turning on the left side. Remaining on the right side they feel quite comfortable. There are no other symptoms referable to the ear. There is no complaint of any type except the gastric and vertigo. Physical examination of the ears, eyegrounds and reflexes is all negative. The temperature is normal, the pulse but slightly elevated. All the symptoms clear up in a day or two but there may be a residual infection of the upper respiratory tract. I have treated these patients with morphine and sodium amytal. Is this condition due to a catarrhal inflammation of the vestibular and semicircular canals? I have not been able to reconcile these symptoms with a Ménière's syndrome. Has the treatment been correct? Please omit name.

M.D., Iowa.

ANSWER.—The description of the cases leads one to think that the internal ear is affected. The exact nature of the mechanism is a mystery. There are a number of explanations given. Some think that a true neuritis of the vestibular nerve may occur as the result of the toxemia of a cold. Such a condition would resemble a neuritis elsewhere and would call forth in addition the characteristic symptoms of irritation of the static labyrinth. There are others who believe that a mild labyrinthitis from a contiguous acute otitis may be present with slight exudate affecting the neuro-epithelium of the labyrinth and producing characteristic signs. There are numerous other instances in which the feeling of many observers is that the condition is due to acute catarrh of the eustachian tube. This would be easy to understand because of the concomitant head cold that so often ushers in the syndrome. Catarrhal stenosis of the tube would lead to changes in the dynamics of the middle and internal ear mechanism. Catheterization of the eustachian tube in these instances is helpful. One must also consider the possibility of a drug toxemia, because many people medicate themselves at the onset of a cold with salicylates and with quinine preparations, to which the labyrinth is notoriously susceptible. The mild course of these illnesses seems proof that, whatever its nature, the pathologic condition is not profound. The more severe and long standing types of vestibular disturbances to which the name Ménière's syndrome is usually attached are probably due to chronic changes, such as sclerosis, in the blood vessels suppling the internal ear.

MECHANISM OF AIR EMBOLISM

To the Editor:—I know that air should not be introduced into the circulation in infusions, transfusions or any intravenous technic, but can you tell me the mechanism of an embolism and the dangers? Is it immediate, as in right auricular failure? Has experimental work on the amounts tolerated been done? I have known of large amounts being introduced without apparent harm. Is it a phobia, unfounded, that a small bubble may be fatal? I have never known of such a fatality.

CORNELL P. GRAY, M.D., Hanover, Pa.

ANSWER.—The amounts of air required to produce death on intravenous injection into animals are variable. L. Wolf (*Virchows Arch. f.-path. Anat.* **174**:454, 1904) found that 10 cc. killed rabbits but that dogs could survive 250 cc. injected slowly during the course of thirty minutes. Karsner (Human Pathology, ed. 4, Philadelphia, J. B. Lippincott Company, 1935) reported death in the dog only after 450 cc. had been injected in the course of twenty-five minutes. The variability in animals is not altogether a function of size and thus the results cannot be transferred quantitatively to man. The amount of air required for death of man is not known. Injected air accumulates principally in the right side of the heart and

in the pulmonary arterial system but also passes on into the systemic circulation. In the experimental animal, failure of the right side of the heart is marked. In man, injection of large quantities of air is rare. Most fatal cases are due to aspiration of air into chest veins during operations about the neck and in the chest. Here the principal factor in the cause of death is embolism into the coronary arteries (Rukstinat, George: Experimental Air Embolism of the Coronary Arteries, THE JOURNAL, Jan. 3, 1931, p. 26) and cerebral arteries (Chase, W. H.: *Surg., Gynec. & Obst.* **49**:569 [Oct.] 1934) rather than failure of the right side of the heart. With this consideration it is probable that relatively small quantities may be of importance. While fatalities from accidental injection of small quantities of air have not been reported, it is wise to avoid the possibility, however remote, that a bubble might lodge in a coronary or cerebral artery. A minute amount of air in a syringe might be of no significance, but carelessness in this respect might ultimately result in the neglect of a column of air in the rubber tubing of an intravenous infusion apparatus.

DETACHMENT OF RETINA

To the Editor:—A satisfactorily nourished single woman about 30 years of age, of a myopic family, has myopia. One brother has had bilaterally detached retinas with blindness since the age of 14 years. Another brother, her sister and her father wear quite strong corrective lenses. The patient herself has had her left retina detached for a number of years, with resultant complete loss of vision in the left eye. She is reasonably apprehensive of her right eye, avoiding automobile rides or other recreations that would invite jars or shocks. In the "good" right eye an opacity of the lens has developed. Soon the cataract will be ripe enough to remove, because her remaining vision is impaired by the opaque lens. She now wears an Optica Dextra correction lens of —6.50 sphere, —2 cylinder axis 15. It is known that removal of the lens in extreme myopia is beneficial to clarity of stationary focus. My question, however, is really that of the patient: what are the chances in skilled hands of her remaining retina becoming detached in the course of the operation, thus precipitating a destruction of all sight permanently? Are there percentages available on this catastrophe or not occurring in the course of cataract extraction in myopia? If so, kindly quote. Please omit name.

M.D., New York.

ANSWER.—There are no percentages available as to the frequency of occurrence of detachment of the retina after extraction of cataract in either a myopic or a normal eye. The chances of the retina becoming detached during the course of the suggested operation are slight; the greatest danger of such a detachment occurs from months to years later. The development of an opacity in a moderately myopic eye of a 30 year old patient should be investigated from the etiologic standpoint most thoroughly before the question of operation is considered. In all probability there must be a disease condition of the eye responsible for the early formation of the cataract. And the same disease condition might be a predisposing factor toward the development of a detachment. Consequently, it would appear that a thorough overhauling of that patient, both ocular and general, is in order.

FARASTAN OR MONO-IODO-CINCHOPHEN

To the Editor:—Please give me all the information you can about a preparation known as "Farastan" "Mono-Iodo-Cinchophen" "A synthetic compound of Cinchophen and Iodine" made by the Farastan Company of Ardmore, Pa. I have a patient who is suffering from chronic arthritis, and neuritis for whom this preparation was prescribed by another physician, with considerable relief from pain. I have been afraid to use it, and will not do so without assurance from you that it can be used with safety.

M.D., Texas.

ANSWER.—In a report published more than five years ago the Council on Pharmacy and Chemistry declared Farastan not acceptable for inclusion in New and Nonofficial Remedies because "it is an irrational preparation marketed with unwarranted therapeutic claims" (THE JOURNAL, Feb. 15, 1930, p. 484). At that time Farastan was claimed to be mono-iodo-cinchophen, a "new chemical complex" containing approximately 33.6 per cent of iodine. A note published three years later (THE JOURNAL, March 4, 1933, p. 686) includes a summary of the Council's objections to Farastan, as published in its adverse report, in addition to the following pertinent remark: "There is no reason to suppose that the likelihood of producing hepatitis from Farastan is any less than that from an equivalent amount of cinchophen."

Now the U. S. Department of Agriculture, in a press release dated Dec. 20, 1935, calls attention to the seizure of a shipment of "Farastan Mono-Iodo-Cinchophen Compound" because "the name was held to be false and misleading, since the article consisted almost entirely of cinchophen (97%)." This information is quite interesting in view of the manufacturer's oft-repeated claim that Farastan is a "synthetic compound of cinchophen and iodine" which is "more valuable than the older cinchophen products" because it is "more potent therapeutically and more easily tolerated." Thus Farastan appears essentially to be cinchophen; those using cinchophen will prefer to employ products marketed under the pharmacopeial name with full knowledge of the potential dangers of this product and exploited without unwarranted and misleading claims.

THE INTERMEDIATE GANGLION

To the Editor:—Howell says that the dilator fibers to the pupil "pass down the spinal cord to terminate in the lower cervical region. From this point the path is continued by spinal neurons which leave the cord in the eighth cervical and the first and second thoracic spinal nerves and pass by way of the corresponding rami communicantes into the sympathetic chain at the level of the first thoracic ganglion. From this point the fibers pass upward in the cervical sympathetic without terminating until they reach the superior cervical ganglion. . . . From this ganglion . . . the path is continued by postganglionic fibers." De Takáts (Peripheral Vascular Diseases, *Arch. Int. Med.* **56**: 612 [Sept.] 1935) says: "For the sympathetic denervation of the upper extremity . . . it is necessary to cut the dorsal sympathetic trunk below the second dorsal ganglion because of a frequent communicating branch from the second ganglion to the first thoracic nerve. . . . It also became evident . . . that removal of the inferior cervical ganglion without the intermediate ganglion may lead to incomplete denervation or to Horner's syndrome, indicating that connections are possible between the cord and the intermediate ganglion." If Horner's syndrome is due to interruption of preganglionic fibers, why is it more apt to occur when the middle cervical ganglion is left intact? If by the intermediate ganglion the author means the first thoracic, the same holds true. Interruption of the pathway at any point should cause Horner's syndrome; partial preservation of the pathway would not be expected to cause the syndrome or to make it more likely to appear.

SAMUEL L. IMMERMAN, M.D., Philadelphia,

ANSWER.—There is a misleading, typographic error in the statement concerning the production of Horner's syndrome after sympathetic ganglionectomy. The sentence should read: "Removal of the inferior cervical ganglion without the intermediate ganglion may lead to incomplete denervation or no Horner's syndrome." The author wished to emphasize that when the intermediate ganglion is not removed there may be an absence of Horner's syndrome even though the stellate ganglion has been excised. As cervicodorsal sympathectomy is done by most surgeons through the posterior approach, this small ganglion, which lies ventral and cephalic to the inferior cervical ganglion, may escape removal; and as it seems to have direct connections with the cord, the tonic influence on the eye is not or is only incompletely abolished. One of the causes of failure following cervicodorsal sympathectomy is the failure to excise this ganglion. For this reason, among others, the anterior approach of Gask is preferable, as this small mass of ganglion cells lies anterior to the vertebral artery.

The intermediate ganglion, according to the anatomic dissections of Cabanac (*Ann. d'anat. path.* **8**:309 [March] 1931) is present in about 70 per cent of the cases. Its presence is due to a redistribution of ganglionated masses situated between the middle and inferior cervical ganglions; when present, the middle and inferior ganglions are smaller. The latter may be hidden behind the intermediate ganglion and may escape the surgeon's notice, thus again resulting in incomplete sympathetic denervation. Attention to and recognition of this structure is an important point in the technic of cervicodorsal sympathectomy.

CHAULMOOGRA OIL IN ARTHRITIS

To the Editor:—I have a patient, suffering from spondylitis deformans, who has read in the daily newspapers of chaulmoogra oil and is anxious to use this. Please give me all the information you have in the manner of administration and dosage. The patient is 35 years of age.

CHARLES A. BALKWILL, M.D., Grafton, Wis.

ANSWER.—The use of chaulmoogra oil is entirely empirical. P. A. McIlhenny first suggested this therapy and reported improvement in a series of thirty-nine cases (Chaulmoogra Oil in the Treatment of Arthritis, *New Orleans M. & S. J.* **84**: 182 [Sept.] 1931). G. A. Hebert made a preliminary report of a similar nature (Treatment of Arthritis with Chaulmoogra Oil, *Tri-State M. J.* **5**: 1050 [Feb.] 1933). Neither of these authors had any controlled series of cases and their reports will not impress those who have seen numerous therapeutic agents enthusiastically recommended and tried, only to be abandoned after more experience with them.

Chaulmoogra oil has been used for years in the treatment of leprosy and its value in this field has been favorably received. In the treatment of arthritis it has been used both orally and intramuscularly, simultaneously. One and two-thirds cubic centimeters has been recommended, taken three times daily in enteric capsules; 5 cc. of a mixture containing the oil is injected

biweekly deep into the gluteal muscles. Hebert has advised that the initial dosage be only 3 cc. The mixture consists of 0.2 Gm. of benzocaine, 10 cc. of olive oil and 90 cc. of crude chaulmoogra oil.

There is moderate local pain after each injection and some systemic reaction occurs, characterized by leukocytosis. Several instances of abscesses in the gluteal muscles have been reported.

CHRONIC PANCREATITIS OR ADRENAL TUMOR

To the Editor:—A man, aged 42, a cigar salesman, whose normal weight is 160 pounds (73 Kg.), has been subject for the past three years to frequent attacks of gastro-intestinal disturbances characterized by constipation, a sense of fulness and pain in the upper left quadrant of the abdomen. These periods are accompanied with the occurrence of rather pronounced glycosuria, which promptly disappears on subsidence of the gastro-intestinal symptoms. During the free periods he is apparently in normal health and his carbohydrate tolerance is quite normal, while during the periods of the attacks (usually lasting from one to three days) the tolerance is low, so that four drops of urine in 1 cc. of reagent precipitates a heavy deposit. For the past three years he has lost 20 pounds (9 Kg.). Could this syndrome be due to a chronic pancreatitis with acute exacerbations? I would greatly appreciate any suggestions toward establishing a diagnosis and possible treatment. Please omit name.

M.D., Ohio.

ANSWER.—The description of this case is not inconsistent with the diagnosis of chronic pancreatitis with acute exacerbations mentioned in the query. An examination of the stool during or after attacks for evidence of lack of pancreatic juice or bile might be helpful.

However, it must be remembered that infection anywhere in the body may cause marked lowering of carbohydrate tolerance. Thus a diverticulitis of the colon should be considered. Roentgen examination is suggested.

If these suggestions are not productive, it might be well to visualize the region of the adrenal glands regarding the possibility of a medullary tumor.

CEREBRAL HEMORRHAGE WITH PARALYSIS

To the Editor:—Please discuss the treatment of apoplectic cerebral accidents caused by edema or hemorrhage, especially at the time of the accident and for the eight weeks following it. In Current Medical Literature (THE JOURNAL, June 30, 1934, p. 2237) was an abstract of an article by R. Colella and G. Pizzillo on the treatment of cerebral hemorrhages and emboli by autohemotherapy. Do you know of any reason why some other foreign protein would not give as good results used in this manner as one's own blood or are there to be expected different effects from the use of different foreign proteins that are put out by different pharmaceutical houses?

H. T. CUMING, M.D., Pace, Miss.

ANSWER.—The accepted treatment for hemiplegia following cerebral injuries is usually cerebral exploration on the side contralateral to the paralysis. The exploration usually consists of a large decompression, following which a brain cannula is inserted into the brain at the site suggesting the location of the lesion. If a blood clot is encountered, the cortex may be incised through a silent area and the clot evacuated. Diffuse intracerebral hemorrhage with edema may be partially relieved by the cranial decompression. Dehydration accomplished by fluid limitation to 1,500 cc. daily is effective treatment. Saline cathartics and intravenous dehydration by the administration daily of 1,000 cc. of 20 per cent dextrose solution are likewise effective in controlling edema. There seems to be no recorded American experience with autohemotherapy in such cases.

TRICHOMONAS AND LEUKORRHEA

To the Editor:—Your recently published query and minor note on leukorrhea should have mentioned trichomonas infection, which, of course, is more productive of leukorrhea after the periods and produces no palpable pathologic changes. I should much appreciate the author of the reply referring me to the original research, which proves that increased physiologic secretion due to emotional stimulation macerates the cervical mucosa and so produces a glandular hyperplasia leading to erosions and leukorrhea.

M.D., Iowa.

ANSWER.—The reply to the query on leukorrhea did not mention Trichomonas vaginalis because the inquiry stated that repeated examination proved negative for organisms.

Our reply did not state or suggest that original research has proved that increased physiologic secretion due to emotional stimulation macerates the cervical mucosa and so produces a glandular hyperplasia leading to erosions and leukorrhea. But clinical observation has led to this deduction, and careful clinical observation of patients is often more productive than pure laboratory study. In this connection it might have been well to mention the specific cervical changes that accompany abnormal secretion or administration of estrogenic substance, as has been emphasized by Hofbauer and others.

USE OF IODIZED OIL IN BRONCHOGRAPHIC WORK

To the Editor:—How is the iodized oil used in bronchographic work prepared? 1. Is there a cheaper substitute for it? 2. Can it be prepared from some cheap oil, such as cottonseed oil? 3. If so, could this procedure be accomplished in a moderately well equipped laboratory?

M.D., North Carolina.

ANSWER.—The original iodized oil, introduced as "Lipiodol," is 40 per cent iodine (by weight), chemically combined with the unsaturated hydrocarbon molecules of poppy-seed oil. Its exact method of manufacture is too involved for preparation except under careful chemical control. It is remarkably free from uncombined iodine.

1. Several of the other iodized oils are cheaper than iodized poppy-seed oil. Some proprietary preparations have a lower iodine content (not more than 26 per cent). If a preparation of less iodine content is desired, iodized poppy-seed oil may be diluted, in which case it may be cheaper than other products.

2. Unsaturated oils other than poppy-seed oil may be used, but cottonseed oil is unsatisfactory.

3. The preparation of iodized oil has been attempted by several physicians in hospital laboratories but we do not know of any one who has been permanently satisfied with a home-made oil.

EFFECT OF FLUID INTAKE IN EPILEPSY

To the Editor:—What is the current opinion as to the effect of fluid intake on the treatment for epilepsy?

BEN G. CHAPMAN, M.D., Cromwell, Ind.

ANSWER.—The majority of investigators today favor "the mechanical theory of epilepsy"; that is, the theory that the immediate, precipitating cause of the convulsion is cerebral edema. This edema is the result of a disturbance in water balance whereby the brain cells become abnormally swollen with excess fluid or else the spinal fluid reservoirs accumulate excessively large amounts of fluid or both. Theoretically and experimentally it may be demonstrated that rigid fluid restriction will dehydrate the body tissues, including finally the brain. Fay introduced fluid restriction or dehydration in the treatment of epilepsy and suggested that the beneficial effect of the ketogenic diet was at least partly due to its dehydrating action. Hydration by forcing fluids or by injecting a fraction of pituitary extract or both will often precipitate a convulsion in an epileptic patient, while rigid fluid restriction, including foods with high water content, will control grand mal attacks. It seems to have no effect on petit mal seizures. Restriction to less than 400 cc. (13 ounces) may cause erythrocyturia and must be carefully watched. Details of the diet preparation and fluid regulation as well as references to the literature may be found in the *Annals of Surgery* **101**:76 (Jan.) 1935.

DYSMENORRHEA

To the Editor:—My problem is one of dysmenorrhea but is different from what I have seen in literature in that the severe pain comes one or two hours after the patient starts flowing. She is 23 years old, has been married one and a half years, and has had no pregnancy to date. She started menstruating at 15, of the regular twenty-eight day type. Dysmenorrhea has occured ever since, becoming worse since she got married. The patient is sick three days before flowing starts with nausea, belching of gas, dizziness and weakness. During this time she has severe pain in the right lower part of the abdomen over the right ovary. She is in bed usually four days. Physical examination gives normal results except for a slightly retroflexed uterus, smaller than normal. Would you suggest dilation and curettement in this case? Any suggestions would be appreciated. Please omit name if published.

M.D., Minnesota.

ANSWER.—This is evidently a case of congenital primary or essential dysmenorrhea, in which there is freedom from demonstrable pelvic abnormality. The causes of this kind of dysmenorrhea have not as yet been satisfactorily explained. It is agreed that cramping of the uterine musculature is responsible for the pain. Beyond this point one passes into the realm of theories.

Dilation brings permanent relief to a small percentage of these patients. Curettage is apparently of little value.

Based on the theory that an excess of estrogenic substance is responsible for the painful contractions, the anterior pituitary-like gonadotropic principle of pregnancy urine has been employed for its inhibiting influence. The value of this therapy remains to be determined.

Abdominal exploration in search for hidden lesions together with resection of the presacral nerve is advocated for the most serious cases. Many conservative gynecologists are impressed with the relief afforded by resection of the presaeral nerve.

For patients in whom operative intervention appears to be too extreme a measure, codeine may be given in generous doses without fear of creating a habit; morphine should be avoided.

INTRAVENOUS ADMINISTRATION OF SOLUTIONS

To the Editor:—There are several questions regarding the intravenous administration of various solutions which have evoked considerable differences of opinion. Would you be kind enough to elucidate them for me? 1. What is the optimal rate of flow for administration of dextrose, saline solution and arsphenamine intravenously? 2. Should the rate of flow vary with the concentration of the solution? 3. At what temperature should the solution enter the vein? 4. To what temperature should the fluid in the containing vessel be heated in order to obtain the desired temperature at the needle point? 5. How should the solution be heated?

LOUIS R. FERRARO, M.D., Bronx, N. Y.

ANSWER.—1. Literally drop by drop administration of intravenously injected fluid, or 60 drops per minute, is the optimal rate for the introduction of fluid in great bulk.

2. The more toxic or unphysiologic the fluid, the slower should be its rate of injection.

3. With the intravenous drip, the temperature of the fluid entering the vein need not be above the temperature of the room, though, of course, blood temperature (100 F.) is optimal.

4. It has been estimated that one may figure on the loss of one degree of temperature per foot of rubber tubing, though this is, of course, a mere rough approximation. A sterilizable thermometer-containing glass tube inserted in the rubber tubing near the patient is the most efficient way of observing the temperature of the fluid as it is delivered to the patient.

5. For keeping the solution warm, all sorts of devices have been proposed, from vacuum bottle containers and the partial immersion of a sterilized electric light bulb into the fluid to the use of a heating pad (preferably electric) surrounding the flask or the tubing in its course.

TREATMENT OF DIABETES

To the Editor:—A white woman, aged 58, has had diabetes mellitus about fifteen years. On a restricted diet she can hold her weight and strength and feels well, but with this diet it is not possible consistently to keep her sugar free. I also have a patient of 83 with a similar condition. Neither patient takes well to the idea of insulin. Is it possible for elderly diabetic patients to show a little sugar and still be reasonably safe from the danger of coma? Please omit name. M.D., Alabama.

ANSWER.—It is reasonably safe for patients 58 and 83 years of age to show slight glycosuria and yet avoid coma. On the other hand, experience proves that, unless these patients are really under supervision and sugar free a considerable part of the time, they are liable with sudden changes of diet or an infection to develop severe glycosuria and acidosis. The hope for making progress in treating diabetes is to protect and treat thoroughly the mild and the moderately severe cases rather than to neglect them by concentrating on the very severe cases. It is something like the care of wounds on the battle field. The same amount of time and attention necessary to care for a severely wounded soldier with scant outlook for life, if expended on ten slightly or moderately wounded, may save ten times as many. Fortunately in peace all diabetic patients can receive attention.

Determinations of blood sugar as well as determinations of the total amount of sugar excreted in the urine in twenty-four hours are most helpful as guides to treatment as regards both diet and insulin.

THROMBO-ANGIITIS OBLITERANS

To the Editor:—A patient with thrombo-angiitis obliterans does not have diabetes and has gained wonderfully. He has had the trouble for about four months but sleeps and eats well. He refuses an operation. Kindly tell me what theobromine or theophylline preparation I should get to dilate the coronary arteries. M.D., Kansas.

ANSWER.—Many patients who have thrombo-angiitis obliterans or arteriosclerosis obliterans need no active treatment, as the collateral circulation frequently develops to a point at which the circulatory needs are satisfied. If the arteries of the feet or hands are closed, rigid protective measures should be instituted. Great care in trimming the nails, prophylactic measures to prevent trichophytosis, and modified measures to treat it, avoidance of applying irritating antiseptic solutions to the skin, preservation of heat in the feet or hands during cold weather, and frequent changing of shoes and hose are simple measures which, if rigorously carried out, frequently prevent trophic ulcers. Interdiction of tobacco is important. Reduction in exercise with lessened wear and tear on the feet should be advised. If an ulcer is present, enforced rest to the affected extremity, frequent soaking in warm physiologic solution of sodium chloride, postural exercise, and protein fever therapy are helpful if healing is slow or if there is pain. Sympathetic ganglionectomy may be advisable for protection from future ulcers or gangrene.

Theobromine in doses of 0.3 Gm. (5 grains) three or four times a day with equal amounts of soda, theophylline ethylenediamine in doses of from 0.2 to 0.3 Gm. (3 to 5 grains) and theophylline in doses of from 0.1 to 0.2 Gm. (1½ to 3 grains) three times a day, when administered continuously for a long period, seem to have a beneficial effect on the coronary circulation. The use of the newer tissue extracts likewise seems to relieve the symptoms in coronary disease, probably not by dilating the coronary vessels but by some metabolic effect on the heart muscle.

SPONDYLOLISTHESIS WITH LOW BACK PAIN

To the Editor:—A man, aged 59, has a marked spondylolisthesis. The articular facets between the fourth and fifth lumbar vertebrae show osteo-arthritic changes. The tonsils were removed thirty years ago. The teeth are normal. The gallbladder and the genito-urinary tract are negative. He states that the left ear has discharged intermittently for the last twenty years. The drum is perforated and slight moisture surrounds it. Would the intermittently discharging ear be a focal cause for the osteo-arthritis? Kindly omit name. M.D., New York.

ANSWER.—The osteo-arthritic changes in the articular facets between the fourth and fifth lumbar vertebrae might possibly be accommodative structural changes to reinforce these joints in their abnormal relations.

It is more probable, however, that they are true osteo-arthritic changes due to focal infection, and appearing at a point of unusual stress and shearing strain. It seems likely that the middle ear disease might be a sufficiently active focus to be the cause.

If the low-back symptoms are severe enough to warrant operation, complete relief could probably be attained by fusing the fourth and fifth lumbar vertebrae to the sacrum. This is usually best done by a combination of the Albee and the Hibbs methods. The first recorded operation for spondylolisthesis was performed by the Albee bone-graft method in 1914, as reported by Edwin W. Ryerson (THE JOURNAL, Jan. 2, 1915). This patient was seen twenty years later and had had no recurrence of symptoms. Many other successful results have since been reported. The operation itself is not dangerous, even in elderly people.

SENSITIVITY TO ARSPHENAMINE

To the Editor:—A man, aged 35, first came for treatment one year ago with evidences of secondary syphilis. The blood Wassermann reaction was positive. He was given eight intravenous neoarsphenamine (0.6 Gm.) treatments. He developed immediately after this a severe exfoliating dermatitis. He was then put on quinine bismuth iodide, 2 cc. intramuscularly each week. This was continued for two months, the skin condition gradually clearing. Then another dose of neoarsphenamine (0.45 Gm.) was given. Diarrhea and a severe dermatitis immediately followed and the dermatitis took six months to be relieved. Since then he has stayed on the bismuth preparation intramuscularly each week and occasional series of mercury with chalk, 1 grain (0.06 Gm.) after meals. The Wassermann reaction at the end of a year is still positive. I am reluctant to give any neoarsphenamine to this patient. There is a new preparation of arsenic which is claimed to be less poisonous than neoarsphenamine. This is called Metpharsen-Parke, Davis & Co. Would this preparation be safe to try on this very sensitive patient? He is symptom free but the blood Wassermann reaction is positive after the year's treatment. What treatment would be best in your opinion in such a case? Please omit name. M.D., Massachusetts.

ANSWER.—In a patient who has such a marked hypersensitivity to the arsphenamines, it is not advisable to attempt any further medication with any arsenical preparations. Treatment should be confined to intramuscular bismuth preparations, alternating with iodides and mercury. A severe exfoliative dermatitis is much more dangerous than a positive Wassermann reaction.

ARGYRIA

To the Editor:—What is the danger of argyria following lavage of the kidney pelvis and bladder or both with silver nitrate or any other silver salt? One case has been reported to me but it has not appeared in the literature. My opinion is that the danger is negligible. Will you kindly enlighten me? Please omit name. M.D., Utah.

ANSWER.—When the correct strength of silver nitrate solution is used in the urinary tract, the danger of argyria is remote.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

ARKANSAS: *Medical (Regular).* Little Rock, May 12-13. Sec., State Medical Board of the Arkansas Medical Society, Dr. A. S. Buchanan, Prescott. *Medical (Eclectic).* Little Rock, May 12. Sec., Dr. Clarence H. Young, 207½ Main St., Little Rock.

CALIFORNIA: *Reciprocity.* San Francisco, May 13. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

MINNESOTA: Minneapolis, April 21-23. Sec., Dr. Julian F. Du Bois, 350 St. Peter St., St. Paul.

MISSOURI: St. Louis, June 4-6. State Health Commissioner, Dr. E. T. McGaugh, State Capitol Bldg., Jefferson City.

NEBRASKA: *Basic Science.* Omaha, May 5-6. Dir., Bureau of Examining Boards, Mrs. Clark Perkins, State House, Lincoln.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS. *Parts I and II.* May 6-8, June 22-24, and Sept. 14-16. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

SPECIAL BOARDS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Oral examination for Group A and B applicants* will be held in Kansas City, Mo., May 11-12. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: Oral, clinical and pathological examination of all candidates will be held in Kansas City, Mo., May 11-12. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh. (6).

AMERICAN BOARD OF OPHTHALMOLOGY: Kansas City, Mo., May 11 and New York, Sept. 26. *All applications and case reports must be filed sixty days before date of examination.* Asst. Sec., Dr. Thomas D. Allen, 122 S. Michigan Ave., Chicago.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: Kansas City, Mo., May 11. Sec., Dr. Fremont A. Chandler, 180 N. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Kansas City, Mo., May 9. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PEDIATRICS: Kansas City, Mo., May 9. Albany, N. Y., June 10, Baltimore and Cincinnati in November. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Ill.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: St. Louis, Mo., May 8-9. Sec., Dr. Walter Freeman, 1028 Connecticut Ave., Washington, D. C.

AMERICAN BOARD OF RADIOLOGY: Kansas City, Mo., May 8-10. Sec., Dr. B. R. Kirklin, Mayo Clinic, Rochester, Minn.

AMERICAN BOARD OF UROLOGY: Kansas City, Mo., May 8-10. Sec., Dr. Gilbert J. Thomas, 1009 Nicollet Ave., Minneapolis.

New York September Examination

Mr. Herbert J. Hamilton, chief, Professional Examinations Bureau, reports the written examination held by the New York State Board of Medical Examiners in Albany, Buffalo, New York and Syracuse, Sept. 16-19, 1935. The examination covered 9 subjects. An average of 75 per cent was required to pass. Two hundred and twenty-two candidates were examined, 163 of whom passed and 59 failed. The following schools were represented:

School	PASSED	Year Grad.	Number Passed
University of Arkansas School of Medicine		(1932)	1
University of Colorado School of Medicine		(1935)	1
Yale University School of Medicine		(1930)	1
George Washington Univ. School of Medicine		(1934), (1935)	2
Georgetown University School of Medicine		(1933), (1934, 3)	4
Howard Univ. College of Medicine		(1933), (1934), (1935)	3
Emory University School of Medicine		(1934)	1
Loyola University School of Medicine		(1935, 4)	4
University of Illinois College of Medicine		(1934), (1935)	2
University of Louisville School of Medicine		(1935)	1
Johns Hopkins Univ. School of Med.		(1931), (1933), (1934)	3
University of Maryland School of Medicine and College of Physicians and Surgeons		(1935, 2)	2
Boston Univ. School of Medicine		(1933), (1934), (1935, 3)	5
Harvard University Medical School		(1933), (1934, 3)	4
Tufts College Medical School		(1930), (1934)	2
University of Michigan Medical School		(1931), (1935)	2
Wayne University College of Medicine		(1935)*	1
University of Minnesota Medical School		(1935)*	1
St. Louis University School of Medicine		(1935)	1
Washington University School of Medicine		(1929), (1934)	2
Creighton University School of Medicine		(1934), (1935)	2
Albany Medical College		(1935, 2)	2
Columbia Univ. College of Phys. and Surgs.		(1933), (1935, 4)	5
Cornell University Medical College		(1931), (1933), (1935, 2)	4
Long Island College of Medicine		(1934, 6), (1935, 4)	10
New York Homeopathic Medical College and Flower Hospital		(1935, 10)	10
New York University, University and Bellevue Hospital Medical College		(1934, 4)	4
New York University College of Medicine		(1935, 3)	3
Syracuse University College of Medicine		(1935, 2)	2
University of Buffalo School of Medicine		(1935, 4)	4
University of Rochester School of Medicine		(1935)	1
University of Oregon Medical School		(1931)	1
Hahnemann Medical College and Hospital of Philadelphia		(1931)	1
Jefferson Medical College of Philadelphia		(1933), (1935, 2)	3
Temple University School of Medicine		(1934), (1935, 3)	4
Univ. of Penna. School of Medicine		(1931), (1933), (1934, 2)	4
Woman's Medical College of Pennsylvania		(1934), (1935)	2
University of Vermont College of Medicine		(1935)	1
University of Wisconsin Medical School		(1931)	1
University of Alberta Faculty of Medicine		(1934)	1
University of Toronto Faculty of Medicine		(1932)	1
McGill Univ. Faculty of Medicine		(1931), (1934), (1935)	3
Karl-Franzens-Universität Medizinische Fakultät, Graz		(1934)† (1935)†	2
Medizinische Fakultät der Universität Wien		(1931)†, (1934)†	2
Universidad de Chile Facultad de Ciencias Médicas		(1928)	1
Licentiate of the Royal College of Physicians of London and Member of the Royal College of Surgeons of England		(1935, 5)†	5
University of Sheffield Faculty of Medicine		(1935)	1
Université de Paris Faculté de Médecine		(1934)	1
Université de Toulouse Faculté de Médecine et de Pharmacie		(1934)†	1
Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin		(1930),† (1931, 2),† (1935, 2)†	5
Hamburgische Universität Medizinische Fakultät		(1930)†	1
Julius-Maximilians-Universität Medizinische Fakultät, Würzburg		(1933),† (1934)†	2
Universität Köln Medizinische Fakultät		(1934)	1
Universität Leipzig Medizinische Fakultät		(1935)†	1
Magyar Királyi Ferencz József Tudományegyetem Orvostudományi Kara, Hungary		(1934)†	1
Regia Università degli Studi di Roma. Facoltà di Medicina e Chirurgia		(1934)†	1
Universiteit van Amsterdam Geneeskunde Faculteit		(1933)†	1
Uniwersytet Warszawski Wydział Lekarski		(1922)†	1
University of Saratov Faculty of Medicine		(1922)†	1
Licentiate of the Royal College of Physicians of Edinburgh, of the Royal College of Surgeons of Edinburgh, and of the Royal Faculty of Physicians and Surgeons of Glasgow		(1933), (1934), (1935, 2),† (1935)	5
University of Edinburgh Faculty of Medicine		(1931), (1934),† (1934), (1935, 2)†	5
University of Glasgow Medical Faculty		(1934)†	1
University of St. Andrews Conjoint Medical School		(1934),† (1934), (1935, 4)†	6
Universität Basel Medizinische Fakultät		(1934)†	1
Universität Bern Medizinische Fakultät		(1932),† (1934),† (1934)	3
Université de Genève Faculté de Médecine		(1933),† (1935)†	2

School	FAILED	Year Grad.	Number Failed
Georgetown University School of Medicine		(1931), (1934, 2)	3
Howard University College of Medicine		(1935)	1
Loyola University School of Medicine		(1935, 3)	3
Northwestern University Medical School		(1934)	1
Boston University School of Medicine		(1934, 2)	2
University of Michigan Medical School		(1933), (1935)	2
Fordham University School of Medicine		(1918)	1
Long Island College of Medicine		(1934), (1935)	2
New York Homeopathic Medical College and Flower Hospital		(1935)	1
University of Buffalo School of Medicine		(1935)	1
Jefferson Medical College of Philadelphia		(1932)	1
University of Pennsylvania School of Medicine		(1933)	1
Woman's Medical College of Pennsylvania		(1933), (1934), (1935, 2)	4
Dalhousie University Faculty of Medicine		(1928)	1
Queen's University Faculty of Medicine		(1931), (1934, 2)	3
Medizinische Fakultät der Universität Wien		(1932, 2),† (1933),† (1934)†	4
Univerzita Komenského Fakulta Lekárska, Cze		(1933)†	1
Licentiate in Medicine, Surgery and Midwifery of the Apothecaries' Society of London		(1935)†	1
Licentiate of the Royal College of Physicians of London and Member of the Royal College of Physicians of London		(1934)	1
Université de Paris Faculté de Médecine		(1929),† (1935, 2)†	3
Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin		(1930)†	1
Johann Wolfgang Goethe-Universität Medizinische Fakultät, Frankfurt-am-Main		(1933, 2)†	2
Ludwig-Maximilians-Universität Medizinische Fakultät, München		(1934)	1
Medizinische Akademie Düsseldorf		(1934)†	1
Universität Köln Medizinische Fakultät		(1932)	1
Westfälische Wilhelms-Universität Medizinische Fakultät, Münster		(1931)	1
National University of Athens School of Medicine		(1922)	1
National University of Ireland		(1935)†	1
Regia Università degli Studi di Bologna. Facoltà di Medicina e Chirurgia		(1934)†	1
Regia Università degli Studi di Roma. Facoltà di Medicina e Chirurgia		(1932), (1934, 2),† (1934, 2)	5
Regia Università di Napoli. Facoltà di Medicina e Chirurgia		(1934)†	1
Licentiate of the Royal College of Physicians of Edinburgh, of the Royal College of Surgeons of Edinburgh, and of the Royal Faculty of Physicians and Surgeons of Glasgow		(1935)	1
Universität Basel Medizinische Fakultät		(1935)†	1
Universität Bern Medizinische Fakultät		(1935)	1
Universität Zürich Medizinische Fakultät		(1935)†	1
Université de Genève Faculté de Médecine		(1934)†	1
Nongraduate			1

Two hundred and sixty-three physicians were licensed by endorsement from May 20 through December 31. The following schools were represented:

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
College of Medical Evangelists		(1933), (1934), (1935)	N. B. M. Ex.
Stanford University School of Medicine		(1925) (1933)	California, N. B. M. Ex.
University of California Medical School		(1935)	California
Colorado School of Medicine		(1906)	Colorado

University of Colorado School of Medicine.....(1932) New Jersey
Yale University School of Medicine.....(1929), (1931), (1932), (1933, 2), (1934) N. B. M. Ex.
George Washington University School of Medicine...(1908) Vermont, (1933) N. B. M. Ex., (1934) Maryland
Georgetown University School of Medicine.....(1934, 3) Maryland, (1933, 2), (1934, 2) N. B. M.Ex.
Howard University College of Medicine.....(1925) New Jersey, (1932) Virginia, (1930), (1934) Tennessee
Loyola University School of Medicine.....(1930), (1933) Ohio, (1935) N. B. M. Ex.
Rush Medical College.....(1905) Minnesota, (1921) California, (1927) D. C., (1921), (1927), (1930) Illinois, (1925), (1934, 2), (1935, 2) N. B. M. Ex.
School of Medicine of the Division of the Biological Sciences.....(1933), (1935)N. B. M. Ex.
Indiana University School of Medicine.....(1928) Ohio, (1925), (1928), (1933), (1934, 2) Indiana
State University of Iowa College of Medicine.....(1906) Iowa
University of Kansas School of Medicine.....(1929) Kansas
Louisville Medical College.....(1907) Kentucky
Tulane University of Louisiana School of Medicine..(1928), (1929) Louisiana, (1932) N. B. M. Ex.
Baltimore Medical College.....(1903) Maryland
Johns Hopkins University School of Medicine.....(1905) Diploma, (1927) Connecticut, (1927), (1929) N. B. M. Ex., (1932) Virginia, (1921), (1934), (1935, 2) Maryland
University of Maryland School of Medicine and College of Physicians and Surgeons.....(1914) P. R., (1924), (1930), (1932), (1933), (1934), (1935) Maryland
Boston University School of Medicine...(1905) Mass., (1934) New Jersey
Harvard University Medical School.....(1926), (1928) Mass., (1930, 2) (1931, 7), (1932, 3), (1933, 3), (1934, 2) N. B. M. Ex.
Tufts College Medical School.....(1926) Mass., (1933, 2)N. B. M. Ex.
University of Michigan Medical School.....(1918), (1919, 2), (1925) Michigan, (1928), (1932), (1934, 2) N. B. M. Ex.
University of Minnesota Medical School.....(1929) Minnesota
St. Louis University School of Medicine.....(1933)N. B. M. Ex., (1934) Tennessee
Washington University School of Medicine.....(1933)N. B. M. Ex., New Jersey, (1934) Ohio
Creighton University School of Medicine.....(1932) New Jersey
University of Nebraska College of Medicine.....(1929)N. B. M. Ex.
Albany Medical College.....(1929), (1933), (1934)N. B. M. Ex.
Columbia Univ. College of Physicians and Surgeons.(1932) New Jersey, (1931), (1932, 7), (1933, 2), (1934) N.B. M.Ex.
Cornell University Medical College.....(1926), (1932), (1933, 4), (1934,4) N. B. M. Ex.
Long Island College of Medicine.....(1932) New Jersey
New York Homeopathic Medical College and Flower Hospital..(1932), (1933), (1934, 2) N. B. M. Ex. (1934) New Jersey
New York University, University and Bellevue Hospital Medical College.....(1932), (1933)N. B. M. Ex.
Syracuse University College of Medicine.....(1934, 2)N. B. M. Ex.
University of Buffalo School of Medicine..(1932), (1934)N. B. M. Ex.
University of Rochester School of Medicine.....(1930) Maryland, (1932) New Jersey, (1929), (1933) N. B. M. Ex.
Ohio State University College of Medicine.(1933, 2), (1934) Ohio
University of Cincinnati College of Medicine.....(1928), (1929), (1933), (1935, 2),* (1935) Ohio
Western Reserve University School of Medicine.....(1930) Ohio
University of Oklahoma School of Medicine.....(1917) Oklahoma
Hahnemann Medical Col. and Hosp. of Philadelphia...(1934), (1935) Maryland
Medico-Chirurgical College of Philadelphia.....(1915) New Jersey
Woman's Medical College of Pennsylvania.....(1925) Penna., (1931), (1934) N. B. M. Ex.
Meharry Medical College.....(1929) Maryland, (1933) North Carolina, (1931), (1934, 4) Tennessee
University of Tennessee College of Medicine.....(1932), (1933), (1934), (1935) Tennessee
Vanderbilt University School of Medicine.....(1915) Alabama, (1929) Tennessee, (1933) New Jersey
Baylor University College of Medicine.....(1931), (1935) Texas
University of Vermont College of Medicine..(1933), (1934)N. B. M. Ex.
Medical College of Virginia.....(1930) Virginia, (1933)N. B. M. Ex.
University of Virginia Department of Medicine.....(1925), (1930), (1932, 2), (1935) Virginia
Marquette University School of Medicine.....(1932) Ohio, (1934) Wisconsin
Queen's University Faculty of Medicine.....(1919) Saskatchewan
University of Toronto Faculty of Medicine.....(1910) Illinois, (1924), (1927) Ontario, (1930) Ohio, (1934) N. B. M. Ex.
University of Western Ontario Medical School.....(1934)N. B. M. Ex.
McGill University Faculty of Medicine.....(1921) Quebec, (1923) Michigan, (1928) California, (1933, 3), (1934, 2) N. B. M. Ex.
Leopold-Franzens-Universität Medizinische Fakultät, Innsbruck, Austria .....(1922) Austria
University of Liverpool Medical School.....(1925) Illinois
Albert-Ludwigs-Universität Medizinische Fakultät, Freiburg .....(1907),† (1926)† Germany
Albertus-Universität Medizinische Fakultät, Königsberg .....(1924)† Germany
Christian-Albrechts-Universität Medizinische Fakultät, Kiel .....(1924)† Germany
Friedrich-Alexanders-Universität Medizinische Fakultät, Erlangen .....(1924)† Germany
Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin.....(1912),† (1919),† (1922),† (1924),† (1926),† (1927, 2),† (1928),† (1933)† Germany
Hamburgische Universität Med. Fakultät....(1923),† (1924)† Germany
Hessische Ludwigs-Universität Medizinische Fakultät, Giessen .....(1921) West Virginia, (1926)† Germany
Johann Wolfgang Goethe-Universität Medizinische Fakultät, Frankfurt-am-Main .....(1917),† (1926)† Germany
Julius-Maximilians-Universität Medizinische Fakultät, Würzburg .....(1915),† (1925),† (1927),† (1928)† Germany
Ludwig-Maximilians-Universität Medizinische Fakultät, München .....(1923),† (1933)† Germany
Schlesische-Friedrich-Wilhelms-Universität Medizinische Fakultät, Breslau.....(1902),† (1924),† (1926)† Germany
Thüringische Landesuniversitat Medizinische Fakultät, Jena .....(1928)† Germany
Universität Heidelberg Medizinische Fakultät.....(1913),† (1921),† (1924),† (1925)† Germany
Universität Köln Medizinische Fakultät.....(1919)† Germany
Universität Rostock Medizinische Fakultät.....(1920, 2)† Germany
Westfälische Wilhelms-Universität Medizinische Fakultät, Münster .....(1927)† Germany
Magyar Királyi Pázmány Petrus Tudományegyetem Orvosi Fakultasa, Budapest.....(1924)† Hungary
Regia Università degli Studi di Roma. Facoltà di Medicina e Chirurgia.....(1933) New Jersey
Regia Università di Napoli. Facoltà di Medicina e Chirurgia .....(1925) Italy, (1931) Maryland
Regia Università di Torino. Facoltà di Medicina e Chirurgia .....(1933) Maryland, (1933)†New Jersey
Latvijas Universitäte Medicinas Fakultäte, Latvia....(1929)† Latvia
Universiteit van Amsterdam Geneeskunde Faculteit.(1922)† Netherlands
Universidad de Sevilla, Spain.....(1931) Puerto Rico
American University of Beirut School of Medicine...(1935)N. B. M. Ex.

* This applicant has received an M.B. degree and will receive an M.D. degree on completion of internship.
† Verification of graduation in process.

Book Notices

Health and Human Progress: An Essay in Sociological Medicine. By René Sand, Lecturer at the University of Brussels. Preface by Édouard Herriot. Cloth. Price, $3. Pp. 278. New York: Macmillan Company, 1936.

The author of this volume is enamored of the term sociological, which is indeed a fine round word to roll on the tongue. In his opening chapter he delivers himself of a grandiose, utopian conception of sociological medicine which includes sociological obstetrics, sociological pediatrics, sociological psychiatry, sociological dermatology, urology and gynecology, not to overlook phthisiology, neurology, epidemiology, cardiology and stomatology: "Each branch of medicine has its sociological aspect." Precisely so, but not set off by itself in a glorified sociological pigeonhole. Each branch of medicine has always had its sociological aspect, and the great physicians of all time have been those who have been social philosophers and leaders in the great sociological reforms which M. Sand eulogizes as if the physician had little or nothing to do with them, except perhaps with their imperfections, as in his contemptuous dismissal of errors in reporting of causes of death "due to family prejudices or negligence and indifference on the part of the doctors." The author admires "the profound researches and carefully weighed conclusions of the Commission [sic] on the cost of medical service in the United States" without apparently realizing the fundamental differences between the majority and the minority reports. Chapters are devoted to the "social classes," their physical and mental inequality, and their inequality in respect to sickness and death. The influence of health on human progress is discussed from the standpoint of heredity, environment, occupation, domestic factors, economic factors, sanitary and educational factors, and human economics. There is an extensive sociological bibliography and an index. An introduction by M. Edouard Herriot summarizes M. Sand's program as one "to make progress serve us instead of enslave us." The author's program is a broad collectivism which will extend into all phases not only of health but of all human progress. With his underlying objective, the conservation of human capital and the broadening of human life by better wages and more consideration in commerce and industry for the human being, no reasonable person would take issue. There remain many, however, who will not be willing to sacrifice their individual independence and initiative, which may indeed bring them suffering today, but always with an opportunity for glory tomorrow, for regimented health movements, regimented education, regimented thinking, regimented lives, even with garden cities, maternity canteens, day nurseries, soviet-dietetic meals and civic and social centers where all will have free and equal servings from the milk and honey of the promised land. Regimentation is not as happy a word as sociological, but apparently it means about the same.

Traité de chirurgie d'urgence. Par Félix Lejars. Refondu par Pierre Brocq, professeur agrégé à la Faculté de médecine de Paris avec la collaboration de Robert Chabrut. In two volumes. Ninth edition. Cloth. Price, 200 francs, per set. Pp. 688; 689-1299, with 1,250 illustrations. Paris: Masson & Cie, 1936.

It will be a great gratification to all surgeons and students to learn that despite Lejars' lamentable death in 1932 his splendid Chirurgie d'urgence did not perish with him. Since the eighth edition, published in 1921, Lejars had contemplated the preparation of a new one. Fatigue and illness prevented this cherished desire and when he recognized its impossibility he entrusted the task to his colleague Pierre Brocq and to Robert Chabrut, who have produced a splendid revision. The realistic, stimulating and even dramatic descriptions of Lejars' have not been sacrificed. The first personal pronoun is no longer present, but the spirit of the old master is felt on every page. The illustrative cases are still present. Much new material has been added to bring the work down to date. Most of the illustrations have been entirely redrawn and many new ones have been added, including pertinent roentgenograms. Obsolete material has been omitted. Urgent surgery is not to be confused with minor surgery. The many grave conditions of the different regions of the body due to accident or disease, which require prompt attention, are carefully considered from the standpoint of diagnosis and treatment. At times the authors find it difficult to stay within the confines prescribed by the title, but these deviations enhance rather than detract from the work. While in some few matters American opinion might differ with the French, in the main the book is well written, well illustrated, and based on a wealth of experience. It is recommended with confidence.

Behavior Development in Infants: A Survey of the Literature on Prenatal and Postnatal Activity, 1920-1934. By Evelyn Dewey. Published for the Josiah Macy, Jr., Foundation. Cloth. Price, $3.50. Pp. 321. New York: Columbia University Press, 1935.

Behavior is defined for the purpose of this summary as "the neuromuscular and glandular reactions of living human organisms." Unfortunately the social and emotional development has not been included because "there is as yet no satisfactory theory of the process underlying strictly objective neuromuscular behavior patterns." But not all human responses emerge from drives, gestalt or mental factors. The purpose of the survey was to select salient results for correlation with the research program of the Child Development Clinic at the Neurologic Institute. Studies of child development are essentially descriptive in terms of age levels. This summary is of necessity under the group headings of fetal, neonatal and infant behavior.

The progressive development of the various growth patterns is evaluated from conception. Evidence abounds that the reactions of premature infants are not different from infants born at term. But behaviorists credit the environment with initiating behavior. Their contention is that most postnatal responses are learned with the exception of a few labeled "unconditioned." The gestaltists contend that behavior patterns are present at birth and that specific behavior develops from a fundamental relation, oriented within the organisms, to the external world. It is known, however, that some types of behavior have been completely developed in utero, other types have begun to develop and have reached different levels of growth at birth, and still others are not developed until after birth. Extreme versions of behaviorists suffer because they explain too much. They suggest that the child is fabricated out of conditioning patterns. They do not give due recognition to the internal regulatory mechanisms which delimit conditioning and which happily prevent grotesque consequences and which the theories themselves would make too easily possible. On the other hand, the rigid views of gestaltists exclude environmentalism as markedly affecting developmental patterns. Although it is artificial to present a distinction between intrinsic and extrinsic factors it must be granted that growth is a function of the organism rather than of the environment as such. Maturation suggests stabilizing factors that safeguard the basic patterns of growth. Demonstration of determining factors is inconclusive. Few studies have thus far been made tracing the development of any one behavior pattern from earliest reactions to the fully developed ones of the mature being.

No sharp developmental break exists in the transition from fetal to neonatal and from that to infant life. There is, however, a period of latency which corresponds to the accepted principles in the development of neural structures. It is not yet possible to determine whether all types of behavior are controlled during all their different growth stages by the same mechanism. The early stepping movements, for example, might then be linked to the period of walking by the latent transition from the cortical to the subcortical progression only when the organism is physiologically ready to effect purposive walking. Development of any one pattern appears to be progressive and gradual with probably latent periods if not actual regression, during which some other pattern is developing at an accelerated rate. Development of one pattern does not proceed to the exclusion of others but all are progressing simultaneously at different rates with vastly different ages for maturity and with different periods of accelerated growth.

The complex of varied growth during infancy becomes even more difficult of interpretation. Patterns have not been traced from the reaction occurring at birth to the fully developed form. The method of tracing the emergence of differentiated reactions from total behavior is just beginning to be applied. Unfortunately, most of the literature is still concerned with a single stage in the development of any one pattern, the appearance of a specific type of reaction rather than with the progressive stage leading up to and including the particular skill. Behavior development for the individual means adequate adjustment to the environment for the support of life independently. Yet the course of development has not been particularly investigated from this purposive basis.

The literature on infant behavior has been assimilated and interpreted lucidly. Nevertheless it is impossible to present an adequate picture of the total growth pattern or of the fundamental processes underlying it. The difficulties to be overcome are clearly indicated by the author. The evidence available supports no one of the current theories of behavior. The author veers toward the gestalt school, with particular emphasis on the rôle of maturation of the nervous system.

Lehrbuch der inneren Medizin. Von Professor Dr. Theodor Brugsch, o. ö. Professor der Medizin an der Martin Luther-Universität Halle-Wittenberg. In two volumes. Third edition. Paper. Price, 50 marks; 55 marks. Pp. 796, with 177 illustrations; 797-1628, with 278 illustrations. Berlin & Vienna: Urban & Schwarzenberg, 1936.

In the preface to this edition of his textbook on internal medicine the author states that he eliminated all superfluous material to make the book more compact, and yet the two volumes contain 1,628 pages. Many changes have been made, especially in the chapters on neurologic diseases and intestinal disorders, and the entire text has been brought down to date. Space allotted each disease was justly selected according to the practical importance of the subject. The statement that there is no pure race in Europe is apparently not in harmony with the opinion of the government of the country where this work has been published. Each chapter begins with a brief description of the normal and pathologic anatomy and physiology of the organ discussed. Numerous reproductions of photographs, roentgenograms and also colored charts supplement the text. The growing tendency in this country to provide an adequate amount of carbohydrates and to decrease the fat intake by diabetic patients is apparently not shared by the author. Several omissions have been noticed; e. g., relative avitaminoses; the use of vioform and carbarsone in amebic dysentery; the Kahn test in syphilis; the value of phonocardiography in heart diseases and of bronchoscopy in lung cancer; the use of mucin in gastric ulcers; decompression with the indwelling catheter and the merits of intravenous injections of hypertonic saline solutions in intestinal obstruction, and various methods of production of artificial heat, superseding inoculation with malaria. Recommendation of proprietary drugs detracts greatly from the usefulness of the book for foreign readers. The immense wealth of material makes the work encyclopedic in character, so that it can be considered rather as a reference book than as a textbook. Undoubtedly it is one of the most important works on this subject published in recent years in the German literature. It offers an excellent picture of the latest conceptions of continental internists on many problems of internal medicine.

La pratique stomatologique. Publiée sous la direction du Dr. Chompret. III: Technique chirurgicale bucco-dentaire. Par les Drs. Chompret, Dechaume et Richard. Cloth. Price, 55 francs. Pp. 283, with 174 illustrations. Paris: Masson & Cie, 1935.

This volume is the third of a nine volume set and deals with the surgical technic of the oral cavity. The other volumes are: I. Pathology of Mouth and Surrounding Tissue. II. Dental Pathology. IV. Operative Dentistry. V. Removable Prostheses. VI. Crowns and Bridges. VII. Orthodontia. VIII. Restorations and Prostheses of Maxilla and Face. IX. Radiography. Each volume is written by various men who are engaged in the practice of the various specialties enumerated and the illustrations and texts form a summary of their years of experience. The system is intended for both students and practitioners. The first part of this volume is given to the anatomy of the various regions of the head and neck. The second part is devoted to the operating room, including preparation of surgical material, sterilization, and preoperative and postoperative treatment. The third part is devoted to anesthesia, general, local and regional. The fourth deals with extraction of teeth and roots, with instrumentation applicable to each. The extraction of children's teeth is considered especially. The fifth part outlines the extraction of unerupted teeth, curettage and amputation of tooth roots, including most operations done by the oral surgeon, including fractures and tumors. The sixth part includes surgery of the soft parts. The last part considers surgery of congenital and acquired disorders. The book is profusely illustrated by drawings showing the anatomic relations of various tissues, together with instruments and the technic of their uses.

Tumors of the Urinary Bladder. By Edwin Beer, M.D., F.A.C.S., Visiting Surgeon, Mount Sinai Hospital, New York City. Cloth. Price, $3.50. Pp. 166, with 52 illustrations. Baltimore: William Wood & Company, 1935.

This monograph is based on an exhaustive study of tumors of the urinary bladder carried on over a period of twenty-three years. It is divided into twelve chapters and begins with a historical sketch as a foundation. The chapter on pathology is particularly interesting and instructive. Here the author has been assisted by members of his staff, and their personal experiences add much to its value. The chapters on treatment include a discussion of the various methods of approach and give a clear description of operative technic with excellent illustrations. In these chapters one obtains good statistical data and here the author shows an open mind and gives the reader the benefit of his conclusions based on a wide experience. The book contains an excellent bibliography. This work is a valuable addition to urologic literature and is recommended to the urologist, pathologist and general practitioner.

Common Skin Diseases. By A. C. Roxburgh, M.A., M.D., B.Ch., Physician in charge of the Skin Department and Lecturer on Diseases of the Skin, St. Bartholomew's Hospital. General Practice Series. Third edition. Cloth. Price, 15s. Pp. 377, with 148 illustrations. London: H. K. Lewis & Co., Ltd., 1936.

Roxburgh has prepared a third edition of his book in view of the exhaustion of the second edition within sixteen months of its issue. He has added a brief article on gold dermatitis, Besnier's prurigo, recurrent cellulitis and diet in lupus vulgaris. Eleven illustrations have been added, and these, together with the colored plates, are excellent supplements to the succinct descriptions in the text. The book deals only with the common skin diseases. Stress is laid on differential diagnosis, and the chapter on the index of preliminary diagnosis for students is worthy of special mention. For a readable, well illustrated, small textbook of common skin diseases, it has many features to recommend it as a useful book for students.

The Osteopathic Lesion. By George Macdonald, M.B., Ch.B., D.O., and W. Hargrave-Wilson, D.O. Cloth. Price, 7s. 6d. Pp. 141, with 5 illustrations. London: William Heinemann, Ltd., 1935.

This was intended by the authors, one of whom is both a Bachelor of Medicine and a Doctor of Osteopathy, as a defense of the practice of osteopathy. Even after reading it, one cannot obtain an entirely clear understanding of just what the authors mean by the "osteopathic lesion." The authors emphasize that osteopathy is not a process of manipulation or a procedure that is useful in every condition of ill health. They briefly discuss the anatomy of the spine, the physiologic considerations which they consider to be of osteopathic importance, the osteopathic lesion itself, which they consider to be a result of trauma initiating the somaticovisceral reflex, and the effects of repeated trauma, usually on a spinal joint with associated changes in ligaments and soft tissue structure. The effect of the lesion may be localized, peripheral, visceral or general. In the final chapter an attempt is made to describe the osteopathic treatment which is supposed to relieve not only the primary condition but also the secondary phenomena. The reasoning is highly theoretical. Even attempting an attitude of fairness, there does not appear to be any justification for this book. The result of reading it has simply added conviction that osteopathy accomplishes its results largely by the psychic effect on the patient, who is impressed by the fact that something is being done.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Hospitals: Liability to Visitor for Injury Due to Fall on Polished Floor.—The plaintiff, while visiting the defendant hospital, slipped on the waxed linoleum-covered floor of the hallway of the hospital and fractured her arm. She sued the hospital, and when the trial court directed a verdict against her, she appealed to the Supreme Court of Mississippi, Division B.

The owner or person in control of a building, said the Supreme Court, such as a hospital, must exercise reasonable care to construct and maintain the floors in the building so that they will be reasonably safe for those who have the right to use them. If, as in the present case, the danger complained of is one that is entirely open and visible, the doctrine of res ipsa loquitur does not apply. The proprietor is not an insurer but is liable only for negligence. An owner or proprietor charged with negligence as to an appliance, way or method is not liable when he complies with the customary, generally recognized standards employed by careful and prudent men in the same business or occupation. In the present case, the evidence showed that the type of linoleum on the floor had been for a long time in common and general use, under substantially the same method of maintenance, in stores, office buildings and other buildings where members of the public are invited to visit and do visit. The evidence further showed that the linoleum had been regularly cleaned and waxed, according to the directions of the manufacturer, and that this was the first injury that had occurred from its use. The court could see no reason for applying a rule of liability to hospitals different from the rule applicable to other buildings visited by the public, and consequently affirmed the verdict for the hospital.—*Daniel v. Jackson Infirmary (Miss.), 163 So. 447.*

Embalmers: Inherent Right of Board to Revoke a License; Causes for Revocation Must be Specifically Stated.—The plaintiff, a licensed embalmer, employed an unlicensed person to embalm a body for him. The Oklahoma state board of embalmers notified the plaintiff that he had thereby violated the board's rules and regulations and that, on a certain date, the board would determine if his license should be revoked. The plaintiff sought to restrain the board from proceeding against him but the trial court denied the relief sought and the plaintiff appealed to the Supreme Court of Oklahoma. He contended, among other things, that the embalming act conferred on the board no authority to revoke a license and that therefore the board was without jurisdiction to proceed against him.

The embalming act, said the Supreme Court, does not expressly provide for the revocation of licenses. It does confer on the board authority to adopt rules and regulations "whereby the performance of the duties of said board, and the practice of embalming dead bodies, and the conduct of schools for teach-

ing embalming, shall be regulated." The plaintiff contended that the power given by the act to the board to promulgate rules and regulations did not authorize the board to cancel his license or to adopt rules for such purpose. There is considerable authority, the court said, supporting the plaintiff's contention and it finds reinforcement in the fact that in analogous acts the legislature has generally expressly granted the power of revocation of licenses and prescribed the grounds and manner of revocation, as in the case of accountants, barbers, dentists, architects, graduate nurses, physicians and others. But even assuming, the court said, without deciding, that the conferment on the board of power to make rules authorized it to provide for the revocation of licenses, the board adopted no rule expressly prohibiting a licensed embalmer from employing an unlicensed assistant to embalm bodies under his order and direction. Any rules adopted by the board providing for the revocation of licenses must specify the acts constituting the basis or cause of revocation with such reasonable clarity and particularity as to enable a licensee to determine in advance of his acts whether or not they will violate the rules and be capable of becoming the basis of a proceeding for the revocation of his license. So far as the rules of the board in the present case fail in this respect, the court said, they are void. The board is not authorized to proceed under a rule setting forth a general and indefinite power of revocation.

The court held, therefore, that the board in instituting proceedings to revoke the plaintiff's license acted outside the scope of its jurisdiction and attempted to exercise unauthorized judicial powers. The judgment of the trial court was reversed with direction to grant the plaintiff the relief sought.—*Moore v. Vincent (Okla.), 50 P. (2d) 388.*

Workmen's Compensation Acts: Compensability of Neurosis.—Under the Arizona workmen's compensation act, says the Supreme Court of Arizona, for a worker to obtain compensation for a neurosis following an industrial accident it must be shown that that neurosis was the result of some injury sustained in the accident.

In this case the worker, while employed in sulfide ore mines, had to run four or five hundred feet to reach fresh air when the mine shaft in which he was working accidentally became filled with smoke, sulfur gas and dust. The exertion and the inhalation of those substances caused him to choke, cough, vomit and lose his breath. He suffered temporary pulmonary disorders and inflammation of the respiratory organs and of his eyes. Subsequently he developed a neurotic condition, which the industrial commission, in granting him compensation under the workmen's compensation act, found was "traceable in part to circumstances arising out of and immediately following his alleged injury." The employer appealed to the Supreme Court of Arizona.

The workmen's compensation act of Arizona, said the Supreme Court, clearly contemplates that an injury to an employee by accident is compensable whatever that injury may be. Mental or physical suffering which does not lessen the employee's ability to work and earn wages is not compensable, the theory of the law being to remunerate or compensate the employee to the extent of disablement by reason of his injury. The injury may be a disease, and a neurosis is a disease. To entitle an employee to compensation for disability from a disease, however, the disease must result from or be produced or aggravated by an injury. If the commission had found that the employee's neurosis was caused by an injury sustained in an accident, then the award of compensation would have been proper. While the commission in its findings did not so state, the court said, the only conclusion to be drawn from the findings is that the commission believed the employee's neurosis was not induced by any personal injury he suffered, but by a fear or apprehension of imaginary ailments that might follow as a result of his injury and the deplorable condition in which his family might be left. There was medical testimony to sustain such a conclusion. There being no finding that the employee's neurosis was the result of an injury, the award was set aside.—*Phelps Dodge Corporation v. Industrial Commission (Ariz.), 49 P. (2d) 391.*

Society Proceedings

COMING MEETINGS

American Medical Association, Kansas City, Mo., May 11-15. Dr. Olin West, 535 North Dearborn St., Chicago, Secretary.

Alabama, Medical Association of the State of, Montgomery, Apr. 21-23. Dr. D. L. Cannon, 519 Dexter Avenue, Montgomery, Secretary.

American Academy of Pediatrics, Kansas City, Mo., May 11-12. Dr. Clifford G. Grulee, 636 Church St., Evanston, Ill., Secretary.

American Association for the Study and Control of Rheumatic Diseases, Kansas City, Mo., May 11. Dr. Loring T. Swaim, 372 Marlboro St., Boston, Secretary.

American Association for the Study of Goiter, Chicago, June 8-10. Dr. W. Blair Mosser, 133 Biddle St., Kane, Pa., Corresponding Secretary.

American Association for Thoracic Surgery, Rochester, Minn., May 4-6. Dr. Richard H. Meade Jr., 2116 Pine St., Philadelphia, Secretary.

American Association of the History of Medicine, Atlantic City, N. J., May 4. Dr. Edward J. G. Beardsley, 1919 Spruce St., Philadelphia, Secretary.

American Association on Mental Deficiency, St. Louis, May 1-4. Dr. Groves B. Smith, Beverly Farms, Godfrey, Ill., Secretary.

American Bronchoscopic Society, Detroit, May 27. Dr. Lyman Richards, 319 Longwood Ave., Boston, Secretary.

American Dermatological Association, Swampscott, Mass., June 4-6. Dr. Fred D. Weidman, Medical Laboratories, University of Pennsylvania, Philadelphia, Secretary.

American Gastro-Enterological Association, Atlantic City, N. J., May 4-5. Dr. Russell S. Boles, 1901 Walnut Street, Philadelphia, Secretary.

American Gynecological Society, Absecon, N. J., May 25-27. Dr. Otto H. Schwarz, 630 S. Kingshighway Blvd., St. Louis, Secretary.

American Heart Association, Kansas City, Mo., May 12. Dr. H. M. Marvin, 50 West 50th St., New York, Acting Executive Secretary.

American Laryngological Association, Detroit, May 25-27. Dr. James A. Babbitt, 1912 Spruce St., Philadelphia, Secretary.

American Laryngological, Rhinological and Otological Society, Denver, May 18-20. Dr. C. Stewart Nash, 708 Medical Arts Building, Rochester, N. Y., Acting Secretary.

American Neurological Association, Atlantic City, N. J., June 1-3. Dr. Henry A. Riley, 117 East 72d St., New York, Secretary.

American Ophthalmological Society, Hot Springs, Va., June 1-3. Dr. J. Milton Griscom, 255 South 17th St., Philadelphia, Secretary.

American Orthopedic Association, Milwaukee, May 18-21. Dr. Ralph K. Ghormley, Mayo Clinic, Rochester, Minn., Secretary.

American Otological Society, Detroit, May 28-29. Dr. Thomas J. Harris, 104 E. 40th St., New York, Secretary.

American Pediatric Society, Bolton Landing, N. Y., June 11-13. Dr. Hugh McCulloch, 325 North Euclid Ave., St. Louis, Secretary.

American Proctologic Society, Kansas City, Mo., May 11-12. Dr. Curtice Rosser, Medical Arts Bldg., Dallas, Texas, Secretary.

American Psychiatric Association, St. Louis, May 4-8. Dr. William C. Sandy, State Education Building, Harrisburg, Pa., Secretary.

American Radium Society, Kansas City, Mo., May 11-12. Dr. E. H. Skinner, 1103 Grand Ave., Kansas City, Mo., Secretary.

American Society for Clinical Investigation, Atlantic City, N. J., May 4. Dr. J. M. Hayman Jr., Lakeside Hospital, Cleveland, Secretary.

American Society for the Hard of Hearing, Boston, May 26-30. Miss Betty C. Wright, 1537 35th St. N. W., Washington, D. C., Secretary.

American Society of Clinical Pathologists, Kansas City, Mo., May 6-10. Dr. A. S. Giordano, 531 North Main St., South Bend, Ind., Secretary.

American Surgical Association, Chicago, May 7-9. Dr. Vernon C. David, 59 East Madison Street, Chicago, Secretary.

American Therapeutic Society, Kansas City, Mo., May 8-9. Dr. Oscar B. Hunter, 1835 Eye St. N. W., Washington, D. C.

American Urological Association, Boston, May 18-21. Dr. Clyde L. Deming, 789 Howard Ave., New Haven, Conn., Secretary.

Arizona State Medical Association, Nogales, Apr. 23-25. Dr. D. F. Harbridge, 15 East Monroe Street, Phoenix, Secretary.

Arkansas Medical Society, Hot Springs National Park, Apr. 27-29. Dr. W. R. Brooksher, 602 Garrison Ave., Fort Smith, Secretary.

Association for the Study of Allergy, Kansas City, Mo., May 11-12. Dr. Warren T. Vaughan, 808 Professional Bldg., Richmond, Va., Secretary.

Association for the Study of Internal Secretions, Kansas City, Mo., May 11-12. Dr. E. Kost Shelton, 34 Micheltorena St., Santa Barbara, Calif., Secretary.

Association of American Physicians, Atlantic City, N. J., May 5-6. Dr. Hugh J. Morgan, Vanderbilt University Hospital, Nashville, Tenn., Secretary.

California Medical Association, Coronado, May 25-28. Dr. F. C. Warnshuis, 450 Sutter St., San Francisco, Secretary.

Connecticut State Medical Society, Hartford, May 20-21. Dr. Charles W. Comfort Jr., 27 Elm Street, New Haven, Secretary.

District of Columbia, Medical Society of the, Washington, D. C., May 6. Dr. C. B. Conklin, 1718 M St. N. W., Washington, D. C., Secretary.

Florida Medical Association, S. S. *Florida*, Apr. 27-29. Dr. Shaler Richardson, 111 West Adams St., Jacksonville, Secretary.

Georgia, Medical Association of, Savannah, Apr. 21-24. Dr. Edgar D. Shanks, 478 Peachtree Street N.E., Atlanta, Secretary.

Illinois State Medical Society, Springfield, May 19-21. Dr. Harold M. Camp, 202 Lahl Building, Monmouth, Secretary.

Iowa State Medical Society, Des Moines, Apr. 29-May 1. Dr. Robert L. Parker, 3510 Sixth Ave., Des Moines, Secretary.

Louisiana State Medical Society, Lake Charles, Apr. 27-29. Dr. P. T. Talbot, 1430 Tulane Ave., New Orleans, Secretary.

Maryland, Medical and Chirurgical Faculty of, Baltimore, Apr. 28-29. Dr. Walter Dent Wise, 1211 Cathedral St., Baltimore, Secretary.

Massachusetts Medical Society, Springfield, June 8-10. Dr. Alexander S. Begg, 8 The Fenway, Boston, Secretary.

Medical Library Association, Rochester, Minn., May 25-27. Miss Janet Doe, 2 E. 103d St., New York, Secretary.

Medical Women's National Association, Kansas City, Mo., May 10-12. Dr. Laila A. Coston-Conner, 333 East 68th St., New York, Secretary.

Minnesota State Medical Association, Rochester, May 3-6. Dr. E. A. Meyerding, 11 West Summit Ave., St. Paul, Secretary.

Mississippi State Medical Association, Greenville, May 5-7. Dr. T. M. Dye, McWilliams Building, Clarksdale, Secretary.
National Tuberculosis Association, New Orleans, Apr. 22-25. Dr. Charles J. Hatfield, 7th and Lombard streets, Philadelphia, Secretary.
New Hampshire Medical Society, Manchester, May 26-27. Dr. Carleton R. Metcalf, 5 S. State St., Concord, Secretary.
New Jersey, Medical Society of, Atlantic City, June 2-4. Dr. J. B. Morrison, 66 Milford Ave., Newark, Secretary.
New Mexico Medical Society, Carlsbad, May 6-8. Dr. L. B. Cohenour, 219 West Central Ave., Albuquerque, Secretary.
New York, Medical Society of the State of, New York, Apr. 27-29. Dr. Daniel S. Dougherty, 2 East 103d St., New York, Secretary.
North Carolina, Medical Society of the State of, Asheville, May 4-6. Dr. L. B. McBrayer, Southern Pines, Secretary.
North Dakota State Medical Association, Jamestown, May 17-19. Dr. Albert W. Skelsey, 20½ Broadway, Fargo, Secretary.
Rhode Island Medical Society, Providence, June 3-4. Dr. J. W. Leech, 167 Angell St., Providence, Secretary.
South Carolina Medical Association, Greenville, Apr. 21-23. Dr. E. A. Hines, Seneca, Secretary.
South Dakota State Medical Association, Sioux Falls, May 4-6. Dr. John F. D. Cook, Langford, Secretary.
Texas, State Medical Association of, Houston, May 25-28. Dr. Holman Taylor, 1404 W. El Paso St., Fort Worth, Secretary.
West Virginia State Medical Association, Fairmont, June 8-10. Mr. Joe W. Savage, Public Library Bldg., Charleston, Executive Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Periodicals are available from 1926 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Cancer, New York

26: 259-482 (Feb.) 1936

*Neoplasms in Cryptorchids. W. G. Christoffersen and S. E. Owen, Hines, Ill.—p. 259.
Angiosarcoma: Case Report and Review of Literature. E. B. Freilich and G. C. Coe, Chicago.—p. 269.
Experimental Alteration of Malignancy with Homologous Mammalian Tumor Material: III. Concerning Filtrability of Material. A. E. Casey, Charlottesville, Va.—p. 276.
Effects of Coal Tar and Other Chemicals on Roots of Allium Cepa. M. Levine and H. Bergmann, New York.—p. 291.
Teratoma of Testis with Tridermal Metastases: Case Report. J. E. Smadel, St. Louis.—p. 316.
Studies in Carcinogenesis: I. Production of Tumors in Mice with Hydrocarbons. M. J. Shear, Boston.—p. 322.
Id.: II. Detection of Dibenzanthracene in Mouse Tumors Induced by This Hydrocarbon. E. Lorenz and M. J. Shear, Boston.—p. 333.
Properties of Causative Agent of Chicken Tumor: XII. Ultraviolet Light Absorption Spectrum of Purified Chicken Tumor Extracts Containing Active Principle. A. Claude and A. Rothen, New York.—p. 344.
*Study of Enzyme Content of Parenchymatous Adenocarcinoma of Pancreas and Comparison with Normal Human Pancreas. K. Sugiura, G. T. Pack and F. W. Stewart, New York.—p. 351.
Growth of Human Fibroblasts in Mediums Containing Various Amounts of Thyroxine. J. P. M. Vogelaar and Eleanor Erlichman, New York.—p. 358.
Morphology of Sarcomas Produced by 1: 2: 5: 6-Dibenzanthracene. C. D. Haagensen and O. F. Krehbiel, New York.—p. 368.
Mesothelial Tumors. C. F. Geschickter, Baltimore.—p. 378.

Neoplasms in Cryptorchids.—Owing to the obscure nature of tumors of undescended testicles, an early diagnosis has been difficult. With the use of the quantitative follicle stimulating factor test it seems unquestionable that they can be recognized in an early stage, long before marked clinical symptoms have developed. Christoffersen and Owen would suggest that this test be used in all cases presenting suggestive histories. It is not so much, however, the positive observation which is important as it is the steady increase in output of gonadotropic substance in these cases when they are untreated. Some of the teratomas of the mixed adult type may be extremely resistant to irradiation. Accurate histologic classification should therefore be attempted, for it is well known that the seminoma group is relatively radiosensitive. A decrease in the follicle stimulating factor following irradiation indicates sensitivity to irradiation, although some cases, which should be radiosensitive histologically, still show a high gonadotropic substance test. Such cases always have a grave prognosis. In following these patients after discharge it is possible to utilize for purposes of assay specimens sent by mail. Mailing tubes equipped with 3-ounce bottles, each containing one drop of tricresol as a preservative, are supplied to the discharged patients at regular intervals. In this manner at least one type of check can be obtained on the distant patient. Five case reports are given, showing the typical observations.

Enzyme Content of Adenocarcinoma of Pancreas.—Sugiura and his co-workers obtained a large amount of pancreatic tumor from a specimen removed at operation. The tumor was a large, solid, parenchymatous adenocarcinoma occupying the tail and much of the body of the pancreas. Despite its large size it was not necrotic, and no metastases were found. This pancreatic tumor was studied from the physiologic point of view and its enzyme content was compared with that of three normal human pancreases. The amylolytic action on starch, the proteolytic action on casein and peptone and the lipolytic action on seven esters of the four specimens was determined. Under comparable conditions the rate of digestion of starch, the degree of protein hydrolysis and the degree of hydrolysis of esters by the extracts of the pancreatic tumor were essentially the same as for normal pancreas. The "pictures" of the relative ester-hydrolyzing actions of the two tissues were similar. The studies suggest that this tumor had a physiologic as well as a morphologic resemblance to normal human pancreas.

American Journal of Diseases of Children, Chicago

51: 239-498 (Feb.) 1936

*Changes in Type of Landry's Paralysis. T. Tanaka, Yamaguchi, Japan.—p. 239.
Method of Preserving Breast Milk: Study of Its Clinical Application. L. A. Scheuer and Jessie E. Duncan, New York.—p. 249.
Blood in Stools of the New-Born. B. E. Bonar, Salt Lake City.—p. 255.
*Absorption of Carotene. W. Heymann, Cleveland.—p. 273.
*Recurrence of Pneumonia in Infancy and in Early Childhood, with Especial Reference to Prognosis. D. Greene, New York.—p. 284.
Sugar Content of Mother's Blood After Fasting: Its Relation to Birth Weight of Infants. E. B. Woods, Augusta, Ga.—p. 297.
Effects on Fetus of Hypervitaminosis D and Calcium and Phosphorus Deficiency During Pregnancy. L. W. Sontag, P. Munson and E. Huff, Yellow Springs, Ohio.—p. 302.
Substances Involved in Coagulation of Blood of the New-Born Infant: V. Studies of Fibrinogen. Marian M. Crane and H. N. Sanford, Chicago.—p. 311.
Weight of Thymus and Its Component Parts and Number of Hassall Corpuscles in Health and in Disease. Edith Boyd, Minneapolis.—p. 313.
Hair Plucking. A. Bleyer, St. Louis.—p. 336.

Changes in Type of Landry's Paralysis.—Tanaka observed that the clinical symptoms and course of Landry's paralysis (fourteen cases) in the Yamaguchi district have gradually changed during the last four years. Cases of the typical form, with peripheral paralysis of the spinal nerves, were seen first. The paralysis was severe, and recovery was not obtained for many months. Next appeared a type characterized by severe spontaneous pain in the joints, muscles and skin of the paralyzed portion of the body on passive and active movement and on pressure. However, the intensity of the paralysis and of the atrophy of the muscles was not severe, and recovery was obtained more quickly than in the earlier cases. The most recent type has been characterized by severe paralysis of the cranial nerves; but the pain has been less intense, and recovery from the paralysis has been more prompt. In short, the type of disorder noted during the four years has progressed gradually from involvement of the peripheral nerves to that of the central nervous system.

Absorption of Carotene.—Heymann shows that the degree to which carotene is metabolized cannot be considered constant even in one and the same healthy child. Infections greatly diminish the intestinal absorption of carotene. Children with chronic infections should therefore be given foods rich in carotene or carotene solution in oil in amounts larger than those usually prescribed. Clausen recommended that preference be given to vitamin A, which seems to be more easily absorbed. The diminished absorption of carotene during infections is not caused by fever as such but is more likely due to some until now unknown toxic factor. The fact that from ten to fourteen days after the last day on which fever was present a marked decrease in the absorption of carotene may still be present

shows that intestinal function may still be disturbed and therefore justifies again an old pediatric rule, namely, that special care should be taken in the feeding of infants even for two weeks after an infection has subsided. The fact that infections in infants who were not suffering from diarrhea were found to interfere with intestinal function (digestion of fat, absorption of carotene) may throw light on the still unsolved problem of the etiology of the so-called parenteral dyspepsias.

Recurrence of Pneumonia in Childhood. — During a period of eleven years there occurred at Greene's institution 561 cases of pneumonia. Eighty children suffered 202 attacks of pneumonia. In 50 per cent of the children who had more than one attack of pneumonia the initial attack occurred during the first year of age, in contrast to 38 per cent of the group of patients having a single (primary) attack of pneumonia. The sexes were about equally divided. There were fifty-two children who had two attacks, eighteen who had three, seven who had four, two who had five and one who had six. In the present study of the recurrent attacks of the disease there were 138 cases of lobar pneumonia and sixty cases of bronchopneumonia. In the cases analyzed, it is found that in 67 per cent of the recurrences the character of the lesion was of the same nature as in the first attack. In thirty-three of the cases of recurrent pneumonia the lesion occurred on the same side and in thirty-four on the side opposite that involved in the first attack. There are exceptional instances. Analysis of the nonfatal cases showed the illness to have terminated in from three to five days in twenty-nine, in from six to ten days in forty-nine, in from eleven to fifteen days in twenty-six and in sixteen days or more in six. The recurrence was of the same duration as the initial attack in 26 per cent of the cases. In 31 per cent the recurrence was longer and in 43 per cent it was shorter than the primary attack. The mode of termination in the recurrent attack was similar to that of the primary attack, regardless of type, in 63 per cent of the cases. There were seven deaths from lobar pneumonia or bronchopneumonia in the recurrent cases, giving a mortality rate of 3.5 per cent as compared with a rate of 16.7 per cent in the group of primary cases of pneumonia of both types. In each fatal case of recurrent pneumonia there was some important contributing factor, or the preceding attack was unusually severe. The low death rate is remarkable, particularly as half the patients were less than 1 year of age at the time of the first attack. Although allowance must be made for the small number of cases dealt with in the fourth, fifth and sixth attacks, the tendency is for the mortality rate to become less and less with each subsequent attack. In other words, the patients with recurrent pneumonia are probably a select group, since they are able to withstand repeated attacks of pneumonia either because of natural resistance or because of some acquired immunity.

American Journal of Public Health, New York

26: 95-218 (Feb.) 1936

Poliomyelitis in North Carolina in 1935. C. V. Reynolds and J. C. Knox, Raleigh, N. C.—p. 95.
Poliomyelitis in Virginia During 1935. I. C. Riggin, Richmond, Va. —p. 98.
Anterior Poliomyelitis in Kentucky During 1935. A. T. McCormack and F. W. Caudill, Louisville, Ky.—p. 101.
Poliomyelitis in Tennessee. W. C. Williams, Nashville, Tenn.—p. 103.
Poliomyelitis in Charlottesville, Va., and Adjacent County of Albemarle. W. W. Waddell Jr. and C. W. Purcell, University, Va.—p. 104.
Results of Field Studies with Poliomyelitis Vaccine. A. G. Gilliam and R. H. Onstott, Washington, D. C.—p. 113.
Active Immunization Against Poliomyelitis. M. Brodie and W. H. Park, New York.—p. 119.
Vaccination Against Acute Anterior Poliomyelitis. J. A. Kolmer, Philadelphia.—p. 126.
Immunity in Virus Diseases, with Particular Reference to Poliomyelitis. T. M. Rivers, New York.—p. 136.
Improved Method of Preparing Kolmer Poliomyelitis Vaccine. J. A. Kolmer, Philadelphia.—p. 149.
Social Significance of Industrial Medicine. H. H. Kessler, Newark, N. J.—p. 158.
Efficiency of Methods and Products for Sterilization of Beverage Glasses. E. D. Devereux and W. L. Mallmann, East Lansing, Mich. —p. 165.
Shellfish Report from Standpoint of Control of Shellfish in Interstate Shipment. A. C. Hunter, Washington, D. C.—p. 167.
Psychologic Factors of Health Education. I. Galdston, New York. —p. 171.
Water Pollution Abatement in the United States. H. R. Crohurst, Cincinnati.—p. 176.

American Journal of Surgery, New York

31: 397-596 (March) 1936

Observations on Behavior of Systemic Blood Pressure, Pulse and Spinal Fluid Pressure Following Craniocerebral Injury. J. Browder and R. Meyers, Brooklyn.—p. 403.
Benign Tumors of Stomach. E. S. Judd and M. T. Hoerner, Rochester, Minn.—p. 427.
Economic Aspects of Industrial Fractures: Study of Two Thousand and Thirty-Eight Cases. A. D. Lazenby, Baltimore.—p. 431.
Biologic Basis of Surgery, Particularly Orthopedic Surgery. G. W. Hawley, Bridgeport, Conn.—p. 438.
Importance of Group Treatment in Modern Therapy of Tumors of Head and Neck. A. F. Holding, Albany, N. Y.—p. 454.
Sodium Ethyl (1-Methyl Butyl) Thiobarbiturate: Preliminary Experimental and Clinical Study. T. W. Pratt, A. L. Tatum, H. R. Hathaway and R. M. Waters, Madison, Wis.—p. 464.
Uses of Falciform Ligament in Surgery of Upper Abdomen. M. Thorek, Chicago.—p. 467.
Granulosa Cell Tumor of Ovary: Report of Two Additional Cases. S. A. Wolfe and S. Kaminester, Brooklyn.—p. 471.
Femoral Bone Lengthening. R. Anderson, Seattle.—p. 479.
Vesicovaginal Fistula: New Method of Postoperative Treatment and Simplified Method of Ureterocystostomy. R. C. Chaffin, Los Angeles. —p. 484.
*Technic of Treatment of Acute Empyema Thoracis. R. B. Bettman, Chicago.—p. 489.
Intestinal Obstruction Treatment by Reenforced Siphonage: Modification of Wangensteen's Method. J. L. Carmichael and J. L. Guffy, Birmingham, Ala.—p. 495.
*Gastro-Intestinal Polyps: Statistical Study of Malignancy Incidence. J. C. Lawrence, Chicago.—p. 499.
Improved Method of Intestinal Anastomosis. G. B. Maurer, Margaretville, N. Y.—p. 506.
Traumatic Appendicitis. M. W. Shutkin and S. H. Wetzler, Milwaukee. —p. 514.
Cancer Points of Rectum and Sigmoid. A. H. Weitkamp, Los Angeles. —p. 521.
Postoperative Complications and Sequels of Peptic Ulcers. R. E. Church, New York.—p. 523.
Some Observations and Deductions of Ileostomy in Low Acute Mechanical Obstruction: Report of Series of Cases. A. A. de Poto, Jamaica, N. Y.—p. 526.
Prophylactic Use of Ergot and Ergotamine Tartrate in Puerperium. S. H. Livingston and S. G. Blum, Brooklyn.—p. 533.
Wound Disruption. H. Koster and L. P. Kasman, Brooklyn.—p. 537.

Treatment of Acute Empyema Thoracis.—Bettman has used a form of treatment for acute empyema for which he uses a Pezzar catheter and irrigation. He has not yet seen a case of chronic empyema develop in a patient in whom the catheter has been left in place until the cavity was obliterated. The insertion of the catheter is readily accomplished and practically as easy as a simple aspiration. It is true that the after-treatment requires meticulous care and unless this is given the closed method of treatment will not be successful. Patients should be hospitalized and under the constant attention not only of a surgeon conversant with this form of treatment but of interns and nurses as well. During the early days of the treatment, particular watchfulness is necessary to guard against the stoppage of drainage by mucous plugs, and the aspiration of air into the pleura from either a leak in the system or neglect in keeping the drainage catheter under the fluid level. As the patient becomes stronger, the latter part of the treatment may be carried out in his home. The duration of the drainage varies not only with individuals but especially with the seasonal differences in the type of infection. However, the pseudomembrane having been removed and the intercostal incision immediately sutured, the closed method can then be carried out successfully. In these patients the duration of postoperative drainage was, as a rule, exceedingly short.

Gastro-Intestinal Polyps.—Lawrence found the incidence of polyps in 7,000 necropsies to be 3.3 per cent. Microscopic study of only those polyps which macroscopically appeared suspicious showed malignant transformation in 6.5 per cent. Speaking for the possibility of a direct relationship to polyps is an additional 12 per cent of carcinomas associated with polyps. The number of polyps more closely approaches the number of malignant conditions in the sigmoid and rectum than in any other region of the gastro-intestinal tract. This relationship is least striking in the small intestine and in the transverse colon. Polyps are found most frequently in persons between 50 and 60 years of age, and in the group more than 40 years of age white males were 1.57 times more commonly affected than white females, 1.5 times more than Negro males and 2.5 times more than Negro females. Polyps were approximately twelve times more common in the colon than in the small intestine.

Annals of Internal Medicine, Lancaster, Pa.

9: 1043-1170 (Feb.) 1936

Growth and Development of Function in Blood Vessels and Lymphatics. E. R. Clark, Philadelphia.—p. 1043.
Present Status of Bronchoscopy in Bronchial Asthma. L. H. Clerf, Philadelphia.—p. 1050.
Prognosis in Acute Glomerular Nephritis. A. B. Richter, Boston.—p. 1057.
Effectiveness of Sippy Regimen in Neutralizing Gastric Juice of Patients If Amount of Alkali Is Not Varied. P. H. Wosika, Chicago, and E. S. Emery Jr., Boston.—p. 1070.
*Value of Mixture of Powdered Milk and Alkali for Neutralizing Gastric Acidity of Patients with Peptic Ulcer. P. H. Wosika, Chicago, and E. S. Emery Jr., Boston.—p. 1078.
*Studies in Hypertension: Proposed Classification of Hypertension Based on Nitrogen Distribution of Serum Proteins. H. A. Rafsky, A. Bernhard and G. L. Rohdenburg, New York.—p. 1091.
*Sedimentation Time in Acute Cardiac Infarction. C. Shookhoff, A. H. Douglas and M. A. Rabinowitz, Brooklyn.—p. 1101.
Combined Medical and Surgical Management of Peptic Ulcer, with Emphasis on Treatment of Hemorrhage. J. W. Thompson and H. W. Soper, St. Louis.—p. 1106.
Observations on Effect of Sudden Changes in Arterial Tension in Angina Pectoris. E. W. Bitzer, Tampa, Fla.—p. 1120.
Practical Use of Hobbies in Practice of Medicine. J. R. Hamilton, Nassawadox, Va.—p. 1129.

Use of Powdered Milk and Alkali in Peptic Ulcer.—Wosika and Emery believe that their modification of the Sippy regimen will retain the value of the treatment and eliminate the many feedings, which is the main disadvantage of the Sippy treatment. They investigated the effect of powdered milk on the gastric juice, for if this could be substituted for whole milk and cream it would be a simple way for a patient to take an alkalized milk product. They compared the effect on the gastric acidity of 90 cc. of whole milk and cream with the effect of 12.5 Gm. of powdered milk. The results were similar with the two preparations, although with the powdered milk the free acidity drops toward the end of the day to a level slightly below that obtained with whole milk and cream. The total acidity was much the same in the two instances. They next compared the effect of an alkalized powdered milk with the usual Sippy treatment. They mixed 0.6 Gm. of calcium carbonate and 2 Gm. of sodium bicarbonate with the 12.5 Gm. of powdered milk, and the entire mixture was given to the patient in 90 cc. of water. Water was allowed in small quantities, usually in the form of cracked ice in addition to the milk and alkalis. The free acidity remained low under both methods. The curve for total acidity was the same whether whole milk and cream or powdered milk was used. The total acidity was less when no alkali was given. The results obtained on patients in the fourth week of treatment are charted. The patients were receiving the same kind of treatment as on the seventh day, with the exception that the six feedings had been changed to three meals. They were encouraged to be up and around the wards in order to approximate as closely as possible the conditions under which they would live after leaving the hospital. Hourly feedings of alkalized milk powder controlled the gastric acidity about as well as whole milk and cream with powders given on the half hour. In the individual patient alkalized powdered milk reduced the gastric acidity to zero in a much higher proportion of instances than with the routine Sippy treatment. A comparison of the efficacy of the routine Sippy treatment with the alkalized powdered milk shows that 90 cc. of milk and cream and of powdered milk without alkali were equally efficacious. Milk and cream adequately controlled 47 per cent of the patients, compared to 50 per cent on powdered milk. However, when alkalis were added, the alkalized powdered milk gave much more satisfactory results. On the first day, 75 per cent were adequately controlled with alkalized powdered milk as opposed to 54 per cent by the routine Sippy treatment. On the seventh day the figures were 94.1 per cent by alkalized powdered milk as opposed to 71 per cent by the routine Sippy treatment, and on the fourth week 94.1 per cent as opposed to 57 per cent.

Hypertension Based on Nitrogen Distribution of Serum Proteins.—Rafsky and his associates observed changes from the normal in 84 per cent of seventy-six cases of hypertension in either the basic amino or monamino nitrogen fractions of the blood serum proteins or in both these fractions; the change in 23 per cent was in both fractions; in 18 per cent only the basic amino nitrogen was altered; in 42 per cent the monamino nitrogen alone was changed and in 15 per cent no change was demonstrable. Based on these chemical changes, a classification of cases of hypertension is proposed. In the cases of hypertension with a low basic amino nitrogen, there was little or no evidence of nephritis. A review of the clinical aspects of the cases of hypertension having increased monamino nitrogen showed in the greater majority of the patients a mild degree of nephritis without retention of the nonprotein nitrogenous constituents. In the group of hypertensive cases in which both nitrogenous fractions deviated from the normal, there was usually evidence of marked nephritis with nitrogen retention in the blood to a varying degree.

Sedimentation Time in Cardiac Infarction.—Shookhoff and his collaborators studied the sedimentation times (Linzenmeier) in twenty-nine cases of acute coronary thrombosis confirmed by electrocardiography. Of nine patients who died, necropsies were obtained in five and an acute coronary thrombosis was found. The sedimentation time was abnormally rapid at some time during the course of the disease in all the cases. Even when the diagnosis is clear, they believe that it is of definite value to follow the sedimentation time. They have found it to be a sensitive indicator of subsequent thrombosis in the heart or elsewhere, or of embolus or infection. It enables one also to estimate the rapidity of healing. At the present time there is no definite evidence that the rapidity of the sedimentation time is proportionate to the extent of the damage in the heart, but it seems justifiable to assume that, while the determination is abnormal, active changes are taking place in the heart muscle. The sedimentation time makes less arbitrary the duration of rest in bed for a particular case and a patient with an acute coronary closure should be kept in bed at least until this determination has returned to normal. Before a cardiac significance is attached to a rapid sedimentation rate, a search should be made for infection and infarction outside the heart.

Archives of Otolaryngology, Chicago

23: 139-266 (Feb.) 1936

Medical Aspects of Aviation. Alma C. Smith, Quantico, Va.—p. 139.
Malignant Tumors of Epipharynx. S. Salinger and S. J. Pearlman, Chicago.—p. 149.
Manifestations of Leukemia Encountered in Otolaryngologic and Stomatologic Practice. A. A. Love, Los Angeles.—p. 173.
*Primary Skin Graft in Modified (Bondy) Radical Mastoidectomy for Preservation of Hearing in Cases of Genuine Cholesteatoma. G. E. Shambaugh Jr., Chicago.—p. 222.

Primary Skin Graft in Modified (Bondy) Radical Mastoidectomy.—Shambaugh asserts that the Bondy modification of radical mastoidectomy is indicated in cases of cholesteatoma in which the perforation is limited to Shrapnell's area ("genuine" cholesteatoma in Wittmaack's classification). The use of the primary skin graft hastens complete epitheliation and prevents troublesome granulations, thus favoring preservation of the hearing. In two cases of genuine cholesteatoma in the ear with the better hearing in which surgical intervention was required, the Bondy modification of radical mastoidectomy with the use of a primary skin graft resulted in completely epitheliated, dry cavities in twenty-five and in thirty-two days and not only preserved but appreciably improved the hearing in the ear on which operation was performed.

Arch. of Physical Therapy, X-Ray, Radium, Chicago

17: 65-128 (Feb.) 1936

Prevention of Deformity and Disability: Its Underlying Mechanical and Physiologic Principles. V. L. Hart, Minneapolis.—p. 71.
Prevention of Disability in Fractures. W. L. Estes Jr., Bethlehem, Pa.—p. 82.
Hallux Valgus: Postoperative Physical Therapy. T. P. Brookes, St. Louis.—p. 87.
Paraffin Osmose Compress (Schubert). F. Nagelschmidt, London, England.—p. 96.
Status of Diathermy in Pneumonia. H. E. Stewart, New Haven, Conn. —p. 98.
*Trachoma Treated by Zinc Ionization: Preliminary Report. S. M. Edison, Chicago.—p. 102.
Combination Electric Suturing Needle and Electrotome. G. M. Blech, Chicago.—p. 107.
Fever Therapy Apparatus. R. F. Atsatt and Luella E. Patterson, Santa Barbara, Calif.—p. 108.

Trachoma Treated by Zinc Ionization.—Edison states that in all clinical stages of trachoma zinc ionization produced complete arrest in thirty-one cases, about 70.5 per cent of those

given four treatments, one each at weekly intervals. Amelioration of all subjective symptoms, with notable beginning regression of the follicles and cicatrization, was obtained in nine cases, about 20.5 per cent. Four patients (9 per cent) did not respond to the treatment. In seven patients, no recrudescence occurred after eighteen months of apparent cure. Zinc ionization was employed in the acute or chronic stages and in the presence of corneal ulcer or pannus. The course of the disease was shortened in all cases. None of the thirty-one patients discharged required further active treatment after the tenth week. Since the electrodes are in contact throughout the treatment with the entire conjunctiva, including the fornices, lids, inner and outer canthi and the caruncle, the entire pathologic area is reached during each ionization. No complications or sequels resulted from the treatments.

Canadian Public Health Journal, Toronto

27: 53-104 (Feb.) 1936

Diphtheria Prevention, Methods and Results. J. G. Fitzgerald, Toronto. —p. 53.
Periodic Health Examination from Various Points of View. H. M. Harrison, Toronto.—p. 61.
Clinical and Radiologic Aspects of Silicosis. A. R. Riddell, Toronto. —p. 67.
Problem Children, Their Parents and Teachers. C. G. Stogdill, Toronto. —p. 73.
Industrial Dermatoses. E. J. Trow, Toronto.—p. 77.
Destruction of Pure Cultures of the Escherichia-Aerobacter Group in Milk Pasteurization. V. E. Graham, Saskatoon, Sask.—p. 81.
*Incidence of Bovine Bacillus in Lesions Found in Man. M. H. Brown, Toronto.—p. 88.

Bovine Bacillus in Lesions in Man.—Brown states that from a total of 241 strains of tubercle bacilli isolated from various lesions in man residing in various parts of the province of Ontario 233, or 96.68 per cent, were of the human type and eight, or 3.32 per cent, were of the bovine type. The highest incidence of the bovine type occurred in strains isolated from spinal fluid, 10.2 per cent being the bovine type. In no instance was the bovine type isolated from the pulmonary system.

Florida Medical Association Journal, Jacksonville

22: 335-392 (Feb.) 1936

Observations on Mechanism and Treatment of Circulatory Failure. E. W. Bitzer, Tampa.—p. 349.
Florida Medical Association and Public Health. H. L. Bryans, Pensacola.—p. 353.
After Cholecystectomy. T. F. Hahn, De Land.—p. 355.
Fungous Infections of Hands and Feet. W. M. Sams, Miami.—p. 360.
Early History of Vaccination Against Smallpox in Southeastern Part of the United States: Corrections and Additions. V. H. Bassett, Savannah, Ga.—p. 363.

Georgia Medical Association Journal, Atlanta

25: 39-78 (Feb.) 1936

Carcinoma of Colon: Case Report. F. K. Boland, Atlanta.—p. 39.
Laryngeal Tuberculosis. L. C. Rouglin, Atlanta.—p. 44.
Torula Meningitis: Report of Case. E. R. Pund and F. H. Van Wagoner, Augusta.—p. 48.
*Relation of Drugs to the Leukopenic State. R. R. Kracke and F. P. Parker, Atlanta.—p. 51.
Scientific Management of Anal Fissure. C. E. Hall, Atlanta.—p. 57.
Chronic Cough. R. C. Pendergrass, Americus.—p. 60.
Intramedullary Tumors: Report of Case. J. C. Weaver, Atlanta.— —p. 61.
Treatment of Paralytic Muscles by Active and Passive Exercise and Importance of Diet: Report of Case. M. F. Carson, Griffin.—p. 63.

Relation of Drugs to Leukopenia.—Kracke and Parker assert that it seems reasonable that all drugs containing the benzene ring with the amine attachment are potentially capable of producing the leukopenic state in both men and lower animals. These include mainly aminopyrine, dinitrophenol and acetphenetidin, and the gold salts have been reported as producing the disease in cases of tuberculosis. The gold salts have as their central structure this benzamine ring with the attached gold molecule. Arsphenamine is capable of producing the disease as well as other forms of bone marrow aplasia. Arsphenamine has for its central structure a double benzene ring with the arsenic attached, and it seems probable that its depressant action is due to its benzamine structure. Many questions have arisen in connection with the drug relationship to agranulocytosis, and one of these has been its mechanism of action. A summation of opinions indicates almost unanimous agreement that benzene ring drugs produce agranulocytosis. There is ample evidence to indicate a close relationship between leukopenic states in agranulocytosis and other blood dyscrasias. The increasing number of cases of myeloid leukemia that eventuate into the aleukemic state illustrates the tremendous range of bone marrow activity that may be seen in the same patient. Patients having aplastic anemia and aleukemic leukemia should be carefully questioned as to ingestion or contact with benzamine ring substances. One may become poisoned from benzene by inhalation, ingestion or injection.

Journal of Bacteriology, Baltimore

31: 109-216 (Feb.) 1936

Latent Infections. K. F. Meyer, San Francisco.—p. 109.
Growth of Butanol Clostridium in Relation to Oxidation Reduction Potential and Oxygen Content of Medium. G. Knaysi and S. R. Dutky, Ithaca, N. Y.—p. 137.
Effect of Atmospheres of Hydrogen, Carbon Dioxide and Oxygen, Respectively, and of Mixtures of These Gases on Growth of Bacillus Subtilis. P. P. Levine, Ithaca, N. Y.—p. 151.
Cultural Requirements of Fowl Coryza Bacillus. O. W. Schalm and J. R. Beach, Berkeley, Calif.—p. 161.
Comparison of Mediums for Detection of Escherichia-Aerobacter. L. A. Black and Mary Elizabeth Klinger, College Park, Md.—p. 171.
Influence of Oxygen Tension on Respiration of Pneumococci (Type I). C. Schlayer, Durham, N. C.—p. 181.
Rôle of Bacteria in Autolyzing Tissue. J. R. Reeves and H. E. Martin, Indianapolis.—p. 191.
Studies on Bacterial Pigmentation: I. Historical Considerations. R. D. Reid, State College, Pa.—p. 205.
Variations in Electrophoretic Mobilities of Escherichia, Aerobacter and "Intermediate" Strains. K. P. Dozois, Baltimore.—p. 211.

Journal of Pediatrics, St. Louis

8: 135-276 (Feb.) 1936

*Use of Blood Coagulant Extract from Human Placenta in Treatment of Hemophilia. R. C. Eley, Arda Alden Green and C. F. McKhann, with assistance of I. Kapnick and Harriet F. Coady, Boston.—p. 135.
*Acute Lymphocytic Meningitis? J. A. Toomey, Cleveland.—p. 148.
Antirachitic Value of Irradiated Evaporated Milk and Irradiated Whole Fluid Milk in Infants (Inpatient Study). M. Rapoport and J. Stokes Jr., Philadelphia.—p. 154.
Irradiated Evaporated Milk in Prevention of Rickets. T. G. H. Drake, F. F. Tisdall and A. Brown, Toronto.—p. 161.
Incidence of Common Contagious Diseases Without Quarantine in Pediatric Service of Fifth Avenue Hospital. Camille Kereszturi, D. Hauptman, W. H. Park and F. Bartlett, New York.—p. 166.
Growth of Thirty-Two External Dimensions During the First Year of Life. H. Bakwin and Ruth Morris Bakwin, New York.—p. 177.
Comparative Value of Schilling Differential Blood Count and Sedimentation of Erythrocytes in Acute Rheumatic Fever in Childhood. J. L. Rogatz, New York.—p. 184.
Papilloma of Choroid Plexus in an Infant. A. Bleyer and W. J. Siebert, St. Louis.—p. 193.
Simple Mechanical Method for Treatment of Enuresis in Male Children. J. Glaser and D. B. Landau, Rochester, N. Y.—p. 197.
Atresia of Vulva in Children. P. Nowlin and J. R. Adams, Charlotte, N. C.—p. 200.
Calcified Abdominal Glands in Children: Clinical Study. C. A. Smith and F. D. Ames, Boston.—p. 205.
Essay on Rattles. E. Caulfield, Hartford, Conn.—p. 226.

Blood Coagulant Extract from Placenta in Treatment of Hemophilia.—Eley and his collaborators have observed a striking difference in the results with tissue protein extract prepared from the human placenta and those reported from the use of animal tissue preparations in the treatment of patients with hemophilia. Animal tissue extracts have shortened the coagulation time of the blood of patients with hemophilia for very brief periods, whereas human placental extracts have reduced the clotting time of both venous and capillary blood for periods varying from forty-eight hours to as long as nine days. Despite repeated slight trauma incident to active childhood, two children with hemophilia have been able to lead normal, active lives for periods of several months by the continued administration of this material at carefully regulated intervals. In the fifteen cases of hemophilia reported, the blood coagulant extract has been well tolerated by oral administration or by intramuscular injection. It must be emphasized that this blood coagulant extract is fatal when injected intravenously in small laboratory animals. Therefore, in using this material in patients with hemophilia, intravenous injection must be avoided as by this route unfortunate, if not fatal, results might ensue. Eleven of the fifteen children with hemophilia have shown a satisfactory response to either the oral or the intramuscular administration

of the extract, as evidenced by a reduction of the coagulation time to within ten minutes, which the authors take as the upper limit of normal. In the other four instances there was a reduction in the coagulation time, but the end point was not sufficiently low to consider the effect as satisfactory as in the other group of cases.

Acute Lymphocytic Meningitis.—The attention of Toomey was attracted to this disease by its rapid epidemic spread in an orphanage which housed 360 male children from 3 to 16 years of age and sixty-five adults. The symptoms of the disease were excruciating headache; anorexia with nausea or vomiting or both; pain in the epigastrium on palpation; a low grade fever; a throat moderately or severely inflamed; some pain on movement of the head; a total white count perhaps lower than usual, but, if normal, in most cases with a relative increase in the circulatory lymphocytes; negative neurologic signs; a spinal fluid pleocytosis with lymphocytes predominating in the severely affected case, and a hemolytic streptococcus that was easily isolated from the throats in a small proportion of the cases. It appears to the author that this may be a new syndrome or a more severe manifestation of acute aseptic meningitis. It should be kept in mind and differentiated from poliomyelitis.

Journal of Pharmacology & Exper. Therap., Baltimore

56: 117-264 (Feb.) 1936

Studies on Pharmacology of Ethyl Alcohol: I. Comparative Study of Pharmacologic Effects of Grain and Synthetic Ethyl Alcohols: II. Correlation of Local Irritant, Anesthetic and Toxic Effects of Three Potable Whiskies with Their Alcoholic Content. O. W. Barlow, in collaboration with A. J. Beams and H. Goldblatt, Cleveland.—p. 117.

Opiate Addiction in the Monkey: I. Methods of Study. M. H. Seevers, Madison, Wis.—p. 147.

Id.: II. Dilaudid in Comparison with Morphine, Heroine and Codeine. M. H. Seevers, Madison, Wis.—p. 157.

Study of Analgesia, Subjective Depression and Euphoria Produced by Morphine, Heroine, Dilaudid and Codeine in the Normal Human Subject. M. H. Seevers and C. C. Pfeiffer, Madison, Wis.—p. 166.

Trypanocidal Action of Azo Dyes. A. St. G. Huggett and S. F. Suffolk, Leeds, England.—p. 188.

Simple Method of Demonstrating Changes in Blood Supply of Ear and Effects of Some Measures. P. J. Hanzlik, F. DeEds and B. Terada, San Francisco.—p. 194.

Ether Anesthesia: Changes in Serum Potassium Content During and Following Anesthesia. B. H. Robbins and Helen A. Pratt, Nashville, Tenn.—p. 205.

Effect of Diphtheria Toxin on Vitamin C Content of Guinea-Pig Tissues. C. M. Lyman and C. G. King, Pittsburgh.—p. 209.

Studies on Pharmacology of Nitrite Effect of Bismuth Subnitrate. E. J. Stieglitz and Alice E. Palmer, Chicago.—p. 216.

Studies on Dinitrophenol: I. Effects of Dinitrophenol on Deglycogenized Rats. B. L. Taussig, St. Louis.—p. 223.

Id.: II. Some Effects of Dinitrophenol on Heart. B. L. Taussig, St. Louis.—p. 228.

Pseudohernia, Visible Manifestation of Local Anesthetic Action. S. Loewe, New York.—p. 238.

Dihydromorphinone Hydrochloride (Dilaudid): Its Tranquilizing Potency, Respiratory Depressant Effects and Addiction Liability, as Tested on Rat. E. J. Stanton, Cleveland.—p. 252.

Medical Annals of District of Columbia, Washington

5: 29-58 (Feb.) 1936

The Heart as a Surgical Organ. C. S. Beck, Cleveland.—p. 29.

Unknown Factors in Etiology of Infections. L. P. Shippen, Washington.—p. 36.

*Present Conception of So-Called "Chronic Cystic Mastitis." A. Horwitz, Washington.—p. 39.

Fundamentals of Internal Medicine: Diseases of the Nervous System. A. Schneider, Washington.—p. 42.

So-Called Chronic Cystic Mastitis.—In discussing the relation of so-called chronic cystic mastitis to malignant condition, Horwitz states that every one agrees that conditions of the breast described as mazoplasia are benign. The cystic states of the breasts may be divided into the nonhyperplastic type, in which the lining epithelium is flattened and atrophic and even absent, and the hyperplastic type, in which there is formation of intracystic papillomas, the so-called papillary cystadenomas. Opinion on the relation of these cysts to malignant conditions is divided into three groups: 1. Those who agree with Cheatle and Cutler that all cystic disease of the breast is precancerous and should be treated radically. 2. Those who agree with Bloodgood, who from clinical experience has concluded that there is no relationship between cystic disease of the breast and malignancy. 3. Those who consider the nonhyperplastic cystic states as benign and who would treat radically only those cysts which show hyperplasia. Kilgore believes that, although the preponderance of evidence is in favor of Bloodgood's concept, a good deal of clinical judgment should be used in the treatment of hyperplastic cystic disease. If it occurs in a woman at an age when the breast function is no longer important and the incidence of cancer is apt to be high, the sacrifice of the breast would be logical. One could be more conservative in the case of younger patients, unless a malignant condition is definitely suggested or if a large portion of the breasts is involved. In the light of recent study of the physiology of the breast, painful lumpy or "shotty" breasts are the result of disordered function and can be treated conservatively with attention to the secretions of the ovary and pituitary glands.

Michigan State M. Society Journal, Grand Rapids

35: 75-154 (Feb.) 1936

Common Lesions of Cervix. N. F. Miller, Ann Arbor.—p. 75.

*Sanitary Control of Diseases Where Alcoholic Beverages Are Sold. C. H. Benning, Royal Oak.—p. 79.

Meanderings in Ophthalmology. L. L. Mayer, Chicago.—p. 81.

Medical Practice in Sweden. B. H. Larsson, Detroit.—p. 86.

Prevention of Cancer. F. G. H. Maloney, Ironwood.—p. 90.

Blastoma of Adrenal: Case Report. W. Le Fevre, Muskegon.—p. 94.

Nonmyxedematous Hypothyroidism. Helene Emeth Schutz, Ann Arbor.—p. 97.

Cancer Survey of Michigan. F. L. Rector, Evanston, Ill.—p. 99.

The Lack of Sanitation in Beer Gardens.—Benning points out that a recent sanitary survey of beverage establishments undertaken by Mallmann and Devereux brought to light the following insanitary conditions: 1. Few establishments in which beer or liquor was sold were attempting proper care in the handling of glassware. 2. Few places in the entire city had satisfactory glassware. 3. Many were not even provided with running water at the dispensing bar. Some were merely dipping the glasses in a pail of water, which was changed at infrequent intervals. 4. In a few, wash sinks were located in back rooms inaccessible to the bar. 5. Appearance of the bar and the wash sinks showed plainly that even rinsing the glasses in water was a rare occurrence in some cases. The author suggests the following sanitary measures for beer gardens, restaurants and places in which alcoholic beverages are sold in rural areas which do not come under a full time health department or where no such ordinance exists even if a full time health department is in operation. 1. The person or persons who are to work in these places must obtain a certificate of health from the health department. This food handler's permit shall consist of an examination for venereal disease, tuberculosis and any other communicable disease. In addition, all workers must be examined to determine whether or not they are typhoid carriers. 2. The conditions existing in the beer garden, restaurant, barbecue or other such place must be sanitary and arranged for the bodily well being of patrons as approved by the health department, where one exists, or by some public health agency to be designated. 3. The washing facilities for glasses, dishes or other eating utensils must be such as will be approved by the state department of health and local health authorities. The author believes that the menace to the health of the people under present conditions in the majority of drinking places is remediable at a cost not out of proportion to the benefit to be obtained.

New England Journal of Medicine, Boston

214: 277-340 (Feb. 13) 1936

Total Thyroidectomy for Heart Disease: Experiences with Twenty-One Patients at the Massachusetts General Hospital. R. J. Clark, J. H. Means and H. B. Sprague, Boston.—p. 277.

Contribution of the Community Hospital to Better Medical Service. P. P. Johnson, Beverly, Mass.—p. 295.

*Emotion and Diarrhea. A. J. Sullivan, New Haven, Conn.—p. 299.

Treatment of Burns. G. C. Penberthy, Detroit.—p. 306.

Heart in Rheumatic Fever. C. L. Derick, Boston.—p. 310.

Emotion and Diarrhea.—Sullivan reviews the early medical views on simple diarrhea, presents observations from the literature on this psychomotor phenomenon and discusses recent work on the etiologic relationship of emotion to certain diarrheas, usually considered organic in origin. Nervous diarrhea, organic diarrheas, mucous colitis and ulcerative colitis are dis-

cussed, and indications for future investigations are given which suggest that, if the colon is substituted for the tear glands and diarrhea for weeping, an idea will be had of how the problem should be attacked. The author does not believe that psychologic studies will provide the answers to all the questions. There is much to be done on the somatic side: the mechanisms involved in the hyperperistalsis, the hypersecretion of mucus and the production of ulceration have still to be solved. There is plenty of scope for investigators who will continue the work so ably begun by Cannon, Alvarez and Cushing. However, in the care of patients there is an immediate need for physicians interested in the psychic investigation and treatment of such psychosomatic disorders. In this group are included not only diarrheal diseases but also essential hypertension, the exophthalmic syndrome, gastric and duodenal ulcer and cardiospasm.

Pennsylvania Medical Journal, Harrisburg

39: 297-384 (Feb.) 1936

Anginal Heart Failure. H. M. Marvin, New Haven, Conn.—p. 297.
Diagnosis and Prognosis of Coronary Occlusion: Electrocardiogram as an Aid. J. B. Vander Veer and L. E. Brown Jr., Philadelphia.—p. 303.
Latent Nonvalvular Congestive Heat Failure. A. P. D'Zmura, Pittsburgh.—p. 309.
The Management of the Patient with Essential Hypertension. E. Weiss, Philadelphia.—p. 313.
Importance of Venesection and Venous Pressure to the General Practitioner. H. F. Robertson, Philadelphia.—p. 319.
Age Incidence and Mortality in Coronary Occlusion: Review of Four Hundred Cases. W. L. Mullins, Pittsburgh.—p. 322.
Remote Symptoms in Upper Respiratory Infection. J. B. Price, Norristown.—p. 325.
Malaria Treatment of Paresis. R. F. L. Ridgway, Harrisburg.—p. 329.
Observations on Ophthalmology of the Near East. H. W. George, Middletown.—p. 334.
Treatment of Thoracic Empyema by Aspiration and Air Replacement: Report of Four Cases. B. J. McCloskey, Johnstown.—p. 336.
Resistant Syphilis, with Especial Reference to an Attempt to Produce Experimentally an Arsenic-Resistant (Neoarsphenamine-Resistant) Strain of Spirochaeta Pallida. S. S. Greenbaum and Anna M. Rule, Philadelphia.—p. 339.

Philippine Journal of Science, Manila

58: 299-426 (Nov.) 1935. Partial Index

Nutritive Mineral Value of Philippine Food Plants (Calcium, Phosphorus and Iron Contents). J. Marañon, Manila.—p. 317.

Public Health Reports, Washington, D. C.

51: 181-202 (Feb. 21) 1936

The Place of Mental Hygiene in Federal Health Program. W. L. Treadway.—p. 181.

51: 203-240 (Feb. 28) 1936

*Prevention of Experimental Intranasal Infection with Certain Neurotropic Viruses by Means of Chemicals Instilled into Nostrils. C. Armstrong and W. T. Harrison.—p. 203.

Prevention of Intranasal Infection with Neurotropic Viruses.—Armstrong and Harrison compared the efficacy of various agents but found from 0.32 to 0.64 per cent trinitrophenol (picric acid) either alone or combined with alum to be superior to 4 per cent alum and to be the most satisfactory and efficient experimental agent. In the concentration and amounts employed it was devoid of detectable general or local injurious effects on animals. Sixteen applications sprayed by means of an atomizer into the nostrils of the authors produced no detectable injurious effects. They believe that the acid exerts its protective effects locally, either by rendering the mucous membranes less permeable to infection or possibly by a direct action on the virus itself, or both. Its use does not prevent the development of specific immunity in mice following a subsequent intranasal instillation of encephalitis virus. The acid given to mice one and two days before, one and two days after or on the same day as the virus instillation led to a decreased susceptibility to the virus in all instances, as compared with nonprepared controls. The protective effect of 0.32 per cent trinitrophenol is apparent against intranasally inoculated poliomyelitis for at least from four to seven days following its last administration. Intranasally instilled chemicals effective in preventing encephalitis in mice have been found effective against poliomyelitis in monkeys, suggesting that the former may be utilized as an indicator in a further search for more effective prophylactic agents in the latter ailment.

Radiology, Syracuse, N. Y.

26: 1-130 (Jan.) 1936

Present Mode in Deep X-Ray Therapy (Coutard). F. W. O'Brien, Boston.—p. 1.
Benign Tumors of Stomach: Observations on Their Incidence and Malignant Degeneration. L. G. Rigler, Minneapolis, and L. G. Ericksen, Dubuque, Iowa.—p. 6.
Study of Cones or Other Collimating Devices Used in Roentgen Therapy. Edith H. Quimby and L. D. Marinelli, New York.—p. 16.
Right Aortic Arch. W. W. Fray, Rochester, N. Y.—p. 27.
Radium Treatment of Postoperative Parotitis. H. H. Bowing and R. E. Fricke, Rochester, Minn.—p. 37.
Present Status of X-Ray as an Aid in Treatment of Gas Gangrene. J. F. Kelly, Omaha.—p. 41.
Roentgen Therapy in Treatment of Nonspecific Respiratory Diseases. A. J. Williams and L. Bryan, San Francisco.—p. 45.
*Blood Picture in X-Ray and Radium Workers. I. I. Kaplan and S. Rubenfeld, New York.—p. 47.
Influence of Roentgen Rays and Radium on Epiphyseal Growth of Long Bones. J. D. Bisgard and H. B. Hunt, Omaha.—p. 56.
Some Lawsuits I Have Met and Some of the Lessons to Be Learned from Them. (Fifth Instalment). I. S. Trostler, Chicago.—p. 69.
Study of Back-Scattered Radiation and Depth Dosage Using a Transplantable Animal Tumor as an Indicator. K. Sugiura, New York.—p. 76.
Radiation Therapy. J. F. Elward, Washington, D. C.—p. 86.

Blood Picture in X-Ray and Radium Workers.—Kaplan and Rubenfeld observed a group of radium workers, both technicians and clinicians, over a period of from one to four years. They have divided the series into group I, those doing roentgen diagnosis; group II, radium element technicians; group III, radium emanation technicians; group IV, radium and roentgen therapy technicians, and group V, radium pack nurses. Under satisfactory working conditions tolerable exposures of about 0.2 roentgen daily (as recommended by the International and British Committees) were found to be far below this tolerance dose in groups I, III and IV. Technicians working with the x-ray diagnostic machines manifested little or no reactions. One individual, with a decrease in polymorphonuclears and an increase in lymphocytes, failed to rectify this alteration even after greater precautions, vacation or change of routine. The workers with radium element showed no deviation in the hemoglobin, red cell count or white cell count. Although the hospital radon technicians showed frequent white cell variations, the hemoglobin and red cell count were not reduced. This group stands as the one in which a low white count approaching a leukopenia, with a relative lymphocytosis, was fairly constant. Return to normal after a vacation was the rule. No hemoglobin or red cell diminution was observed in the technicians preparing commercial radon. Unlike the hospital group, the total white cell level was maintained, but a change in the white components was common. Of four technicians who manipulated both high voltage therapy machines and radium applicators, two showed changes while two remained unaffected. The blood changes were demonstrated by a decrease in the polymorphonuclears and an increase in the lymphocytes, an occasional decrease in total leukocytes and a sporadic eosinophilia. An old malaria may well explain the latter in one individual. The one instance of a red cell anemia appeared in a nurse who manipulated the 5 Gm. radium pack. She was the only one to show a complete inversion of the polymorphonuclear and lymphocyte ratio. The usual record in the other workers was a decrease in the polymorphonuclears and an increase in the lymphocytes, without any other changes. These changes appeared soon after commencing routine in the new field. None of the twenty-two individuals included in this survey showed any grave effects from their particular field of work. The most constant and evidently the most characteristic alteration that occurs in the peripheral blood after exposure to stray radiation from either radium or x-rays is a decrease in the polymorphonuclears and an increase in the lymphocytes. Since a definite reduction in the total white cells was recorded in but two individuals and an eosinophilia occurred in but two others, the authors do not cite that as a definite blood change. This negation is further substantiated by the far greater percentage of white cell changes that appeared in twenty of the twenty-two persons studied. Whether one is justified in laying emphasis on the blood count reading as an index of reaction is a question. The symptom of undue tiredness, which was dominant and often concomitant with alteration in the polymorphonuclear-lymphocyte ratio, was persistently noticeable.

These workers took heed of this change, emphasized greater precautions in the course of their work, enjoyed more sunshine and fresh air, and were often rewarded by a dissipation of the fatigue and a more normal blood count level. Until some more sensitive index is made available, close scrutiny of the ratio between the polymorphonuclears and the lymphocytes should be made at regular intervals. When fatigue accompanies an altered ratio in these components, it will be well to emphasize precautionary and recovery measures.

Rhode Island Medical Journal, Providence

19: 17-30 (Feb.) 1936

Uremia (with Presentation of Specimens—Polycystic Kidneys): Case. Kathleen M. Barr, Providence.—p. 23:

Report of Milk Commission of Providence Medical Association. R. C. Bates, Providence.—p. 27.

South Carolina Medical Assn. Journal, Greenville

32: 31-54 (Feb.) 1936

Three "P's" of Phthisis. J. M. Preston, Lancaster.—p. 31.

Clinical Approach. D. Riesman, Philadelphia.—p. 34.

Blood Transfusion. R. M. Dacus Jr., Greenville.—p. 40.

Surgery, Gynecology and Obstetrics, Chicago

62: 257-524 (Feb. 15) 1936

*Treatment of Peptic Ulcer Based on Physiologic Principles. A. Ochsner, M. Gage and K. Hosoi, New Orleans.—p. 257.

Fundamentals versus Gadgets in Treatment of Fractures. P. B. Magnuson, Chicago.—p. 276.

Adrenal Cortical Tumors. G. F. Cahill, R. F. Loeb, R. Kurzrok, A. P. Stout and F. M. Smith, New York.—p. 287.

*Surgery in Its Relation to Hypertension. A. W. Adson, W. M. Craig and G. E. Brown, Rochester, Minn.—p. 314.

The Medical Problem and Management in Essential Hypertension. S. M. White, Minneapolis.—p. 332.

*Cerebral Injuries Due to External Trauma. G. W. Swift, Seattle.—p. 340.

Diagnosis and Treatment of Stones in Common Bile Duct. A. W. Allen, Boston.—p. 347.

Ischemic Contracture. A. Steindler, Iowa City.—p. 358.

Iodine Relationships of Thyroid Disease. G. M. Curtis, Columbus, Ohio.—p. 365.

Diagnosis of Endometrial Hyperplasia. L. E. Burch, Nashville, Tenn.—p. 373.

Some Aspects of Maternal Nutrition. L. C. Conn, J. R. Vant and Margaret M. Malone, Edmonton, Alta.—p. 377.

Treatment of Peptic Ulcer.—According to Ochsner and his collaborators, the treatment of peptic ulceration has in too many instances been focused on the ulcer itself without realization that the ulcer is merely a symptom. The causes for peptic ulcer can be divided into two groups: one in which the factors are not amenable to therapy but are inherent and predisposing, and the other in which they are precipitating but can be corrected. The inherent or predisposing factors are tissue susceptibility and constitutional predisposition. The precipitating factors are hypersecretion, hyperacidity, focal infection and gastric trauma. Tissue susceptibility, which is an inherent quality present in all individuals, is the vulnerability of certain portions of the gastro-intestinal tract to peptic digestion, such as the lesser curvature, pylorus, duodenal cap, jejunum and other portions of the intestinal tract subjected to the acid gastric chyme, as Meckel's diverticulum containing islands of gastric mucosa. Constitutional predisposition, although difficult to define, is unquestionably present in most if not all patients with chronic gastroduodenal ulceration. As the predisposing factors are not amenable to therapy, the treatment of peptic ulcer consists in the prevention and the correction of the precipitating factors. The peptic ulcer patient must abstain from activities that increase gastric secretion and acidity. In addition to this abstinence, neutralization of gastric acidity is favored by a diet consisting of frequent small feedings, as food is an important neutralizing agent. Administration of mucin is of value in controlling hyperacidity in many cases. Restoration of the normal function of the pyloric sphincter is of importance in the therapy of peptic ulcer, because it relieves gastric retention and also diminishes secretion, which is stimulated by gastric retention. The relaxation of the pyloric sphincter permits free regurgitation of the alkaline duodenal secretion into the stomach and favors neutralization. All foci of infection must be removed, because they can act either directly, by producing a specific inflammation in the stomach or duodenum, or reflexly, when within the abdomen, by producing pylorospasm. To minimize gastric trauma, only bland foods containing no roughage should be allowed. Because of the constitutional predisposition to ulceration, it is imperative that the patient change his mode of living. The surgical treatment of peptic ulcer consists largely in the treatment of complications, such as mechanical obstruction, perforation, repeated hemorrhages and danger of malignant change. In a case of pyloric occlusion with prolonged gastric retention and hypo-acidity, gastro-enterostomy is the procedure of choice. In cases with hyperacidity or normal acidity, because of the increased susceptibility of the jejunal mucosa to the acid gastric chyme, the resection of the pyloric sphincter or the performance of a gastroduodenostomy is to be preferred to gastrojejunostomy. The duodenal mucosa is more resistant to the acid gastric chyme than is the jejunal mucosa. The chronic calloused ulcer in the stomach, which does not respond readily to therapy, should be operated on and radical resection done, because of the danger of malignant change.

Surgery as Related to Hypertension.—Adson and his associates submit the results of a number of surgical procedures carried out in cases of hypertension. The purpose of operation is to destroy the vasomotor innervation to a large vascular area in order to make those vessels which are deprived of their vasoconstrictor impulses unable to respond to the central mechanism and therefore unable to take part in the general phenomena of vasospasm. While the vessels that have not been denervated continue with spasm, the denervated vessels dilate instead and act as reservoirs. The musculature of the heart and blood vessels is capable of responding directly to the pressor and depressor substances circulating in the blood stream, and there is a possibility that these substances increase or that the musculature becomes more active, as a compensatory factor following extensive forms of sympathectomy. It is therefore further possible that this is the explanation for the surgical failures. Operative procedures on the adrenal suggest that a diminution of the secretion of epinephrine is a beneficial factor in the treatment of the disease. The evidence to date, however, is not conclusive or indisputable. Analysis of the data following surgery indicates that certain definite results have been obtained by these extensive operative procedures. A limited number of patients fail to respond to the same procedure, while still others have obtained clinical improvement without a material drop in blood pressure, some of them having had a return of their old symptoms and of their high blood pressures. The interval following these surgical procedures is too short to prognosticate what the ultimate results will be. One of the authors' patients has now survived for approximately five years, but the remaining patients have survived twenty-five months or less. The immediate effects in many cases have justified the surgical treatment, and they have encouraged the authors to continue with the operative measures in the hope that better selection of cases may be made and that subdiaphragmatic splanchnic resections with removal of the upper two lumbar ganglions and resection of the adrenal may be more effective in controlling or relieving symptoms of essential hypertension than the operation of bilateral ventral rhizotomy of the thoracic and lumbar roots, extending from the sixth thoracic to the second lumbar, inclusive.

Cerebral Injuries Due to Trauma.—Swift bases his treatment of cases of cerebral injury due to external trauma on the theory that: 1. The damage is largely done by direct hydraulic pressure and in direct proportion to the character of injury. 2. A disturbance to the normal cerebrohydrodynamics must be rectified at the earliest moment. 3. A maintained cerebrospinal fluid balance is essentially a determining factor as to both mortality and morbidity. 4. Cerebral hemorrhage, when fatal, occurs within the first three hours and in less severe cases may be controlled by proper spinal drainage. 5. The presence of a hydrated brain previous to the injury necessitates the most careful and constant observation. 6. The controlling factors are blood pressure, pulse pressure and sustained nourishment of the patient during the hours of repair. 7. Spinal drainage, hypertonic solutions and whole blood transfusions are the most

valuable procedures. They must be ordered only after careful evaluation of the demand for each one and under the constant supervision of trained nurses, interns and surgeons.

Texas State Journal of Medicine, Fort Worth

31: 603-660 (Feb.) 1936

Surgical Pathology of Thyroid Gland. A. C. Broders, Rochester, Minn.—p. 608.
Radiotherapy for Acute and Chronic Inflammatory Conditions. A. U. Desjardins, Rochester, Minn.—p. 616.
Suppurative Arthritis of Knee Joint. G. W. N. Eggers, Galveston.—p. 623.
Multiple Myeloma. G. D. Carlson, Dallas.—p. 627.
*Occurrence of Combined Depression of Bone Marrow and Encephalitis Following Use of Neoarsphenamine: Report of Two Cases: One with Necropsy and Another with Recovery. R. B. G. Cowper, Big Spring, and J. C. Yaskin, Philadelphia.—p. 633.
Bright's Disease: Pathology and Treatment. J. L. Miller, Chicago.—p. 638.

Encephalitis Following Neoarsphenamine.—Cowper and Yaskin cite two cases of combined occurrence of encephalitis and blood dyscrasias following the use of arsphenamine. In case 1 there was involvement of all the blood elements producing aplastic anemia of the severest kind, which did not respond to any form of treatment. In case 2 there was transient and very mild involvement of most of the blood elements caused by a mild depression of the bone marrow. Both cases when first seen presented manifestations of grave brain disease of unknown etiology. The coexistence of evidences of blood dyscrasias in similar cases may make one suspicious of arsphenamine intoxication. Encephalitis and blood dyscrasias following the administration of arsphenamines vary considerably in their severity. The encephalitis is a result of the involvement of the reticulo-endothelial system; it may be severe with pericapillary hemorrhages and be rapidly fatal or it may be mild with edema of the brain and may terminate in recovery. When only the blood platelets are affected (thrombocytopenia), purpura with hemorrhages follows and recovery is the rule. When the bone marrow is slightly depressed there may be only a reduction of the white cells with a fair chance for recovery. In severe bone marrow depressions when all cellular elements of the blood become affected (aplastic anemia) the outcome is unfavorable. Considering the great number of arsphenamine injections, these complications are relatively uncommon. While there is no way of predicting their occurrence in the majority of cases, owing to their seriousness it is necessary to bear in mind certain precautions. The arsphenamines should be used only when there is a clear indication after taking all facts and factors into consideration. Subjective complaints on the part of the patient receiving the arsphenamines should call, before any further treatment is given, at least for a careful inspection of the skin and mucous membranes and a complete blood count. The treatment of the complication consists in the administration of sodium thiosulfate, transfusions and supportive measures.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

43: 661-726 (Dec.) 1935

Lingual Thyroid: Comprehensive Review. M. L. Montgomery, San Francisco.—p. 661.
*Hypoplasia of the Endometrium, with Especial Reference to Common Histologic Picture in Cases of Functional Uterine Bleeding. W. M. Wilson, Portland, Ore.—p. 670.
*Estrogenic Substances in Treatment of Pelvic Inflammatory Disease. C. F. Fluhmann and P. E. Hoffmann, San Francisco.—p. 678.
Pathogenesis of Otogenous Abscess of Temporal Lobe: Preliminary Report. C. B. Courville and J. M. Nielsen, Los Angeles.—p. 681.
Total Leukocyte and Filament-Nonfilament Neutrophil Count Following Surgical Operations Without Complications. Camille Mermod, San Francisco.—p. 691.

Hypoplasia of the Endometrium.—Wilson observed the endometrium in 139 cases of functional bleeding. He states that, in addition to substantiating his impression concerning the incidence of hyperplasia in uterine bleeding, the study has elicited an endometrial picture which is probably common for the majority of cases of so-called functional bleeding. There is, he believes, ample evidence in the medical literature to substantiate this premise. The etiologic factors involved in the development or underdevelopment of the endometrium as well as the causes of bleeding in these cases are obviously difficult to determine. Although historical data that he records are probably inadequate for confirmatory evidence pointing to definite gonadal dysfunctions, he is convinced that further studies will show that the endometrial picture described is the result of an ovarian dysfunction associated with a diminution in the production of the follicular hormone. The histories and pelvic examinations in a number of cases point in this direction. Likewise the endometrial picture in a majority of cases lacks all signs of proliferation, development appearing to have ceased in the interval phase of the cycle, well before ovulation. This suggests an inadequate supply of estrogenic substance for the normal cyclic proliferation of the endometrium. Quantitative determinations for estrogenic substance in the blood, urine and menstrual discharges of these women would probably furnish further enlightenment. The actual bleeding might be explained on the basis of a diminution in estrogenic substance. It is now generally believed that menstruation in the human being is due to a drop in the estrogenic substance blood level, and the author suggests that the same factor is responsible for many cases of premature and otherwise abnormal bleeding. The fact that estrogenic and anterior pituitary-like substances effect a reduction or a cessation of bleeding in some cases of this type is additional evidence in favor of hypo-ovarianism.

Estrogenic Substances in Treatment of Pelvic Disease.—On the presumption that estrogenic substances stimulate the defensive mechanism of the pelvic organs, Fluhmann and Hoffmann undertook to study the use of estrogenic substance in twenty-nine adults with acute and chronic pelvic inflammatory disease. The substance employed was a preparation of amniotin (Squibb) dissolved in oil and containing 500 or 1,000 rat units per cubic centimeter. It was administered intramuscularly in 0.5 or 1 cc. doses daily until the patient had had from five to sixteen injections and a total dosage varying from 3,750 to 16,000 rat units. Twenty-four patients were ambulatory with chronic or subacute salpingitis, while five were hospitalized and represent a group of acute febrile cases. In twenty-three instances there were definite palpable adnexal masses at the time the injections were begun. On reexamination in from two to six weeks after the course of treatment, complete healing with a disappearance of the masses resulted in seven cases, while nine showed definite improvement but with palpable pathologic changes of the pelvis. On the other hand, no improvement was noted in seven cases, in five of which operation was eventually performed. Of six women in whom no palpable masses were demonstrable but definite tenderness and induration were elicited in the region of the adnexa on pelvic examination, only three showed any degree of improvement within from two to six weeks after treatment. Of twenty-seven women, nine stated that they had obtained complete relief from pelvic pain within from two to six weeks. In three instances this appeared after the third or fourth injection, and it was observed even with persistent pelvic masses. Twelve patients obtained partial relief from pain, while complete failure was noted in only six instances. Of nineteen cases of profuse vaginal discharge, definite improvement within from two to six weeks was noted in seven instances, whereas the amount of discharge was unaffected in twelve cases. A positive smear for gonococci was obtained before treatment in thirteen cases, and six became negative from two to six weeks after treatment. No evidence was obtained that the administration of as much as 9,500 rat units of the preparation during the course of a cycle produces any disturbance in that cycle or in the succeeding menstrual period.

Yale Journal of Biology and Medicine, New Haven

8: 225-336 (Jan.) 1936

Peter Parker: Initiator of Modern Medicine in China. S. C. Harvey, New Haven, Conn.—p. 225.
Id.: Missionary and Diplomat. K. S. Latourette, New Haven, Conn.—p. 243.
Id.: Minister of Good Will. T.-C. Yü, New York.—p. 249.
Dangers Inherent in Clinical Diagnosis of Cancer. D. Merrill, Boston.—p. 253.
Effect of Cysteine on Tetanus Toxin. P. B. Cowles, New Haven, Conn.—p. 265.
Carcinoma of Breast: Results of Radical Surgery Alone Over Ten Year Period. L. N. Claiborn and L. C. Foster, New Haven, Conn.—p. 269.
Mortality and Natality Rates in New Haven Metropolitan Area. J. H. Watkins, New Haven, Conn.—p. 279.
Fat Embolism. H. H. Groskloss, Philadelphia.—p. 297.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Dermatology and Syphilis, London

48: 1-52 (Jan.) 1936

*Importance of Overlapping in Irradiation of the Scalp: Comments on Tolerance of Skin for Soft Rays. S. Epstein.—p. 1.
Methods to Be Employed in the Investigation of New Substances Designed for Treatment of Syphilis. W. R. Snodgrass.—p. 11.
Biologic Therapy in Virus Diseases. R. T. Brain.—p. 21.

Overlapping in Irradiation of the Scalp.—Epstein points out that in epilation irradiations of the head with longer focus skin distances so much overlapping occurs that some areas under certain circumstances of irradiation receive up to 180 per cent of the dose applied to the different centers and thus receive up to nearly 500 roentgens (incidence dose). In spite of these overdosages there are no bad consequences to be feared for normal cases, as experience shows. This is intelligible as a result of observing a child, aged 4 years, who received on one field of radiation 540 roentgens (incidence dose). Even with this dose there was only a temporary epilation, without any reaction and with subsequent full regrowth of the hair. These observations tend to bear out from the clinical point of view the statement, demonstrated by experiments of various authors, that the sensitivity of the skin is the same for the rays applied for dermatologic therapeutics (of about 100 kilovolts) as well as for harder rays.

British Journal of Radiology, London

9: 1-70 (Jan.) 1936

Looking Backward and Looking Forward. L. A. Rowden.—p. 3.
Whither Radiology? C. G. Teall.—p. 9.
Radiology as a Specialty. J. F. Brailsford.—p. 17.
The X-Ray Microscope. G. Shearer.—p. 30.
*The Depth Dose in Radium Teletherapy. C. W. Wilson.—p. 38.
Field Distortion in Standard Ionization Chamber. W. H. Love and W. B. Smith-White.—p. 51.
Ureterocele. E. R. Williams.—p. 59.

Depth Dose in Radium Teletherapy.—By measurements with various wax phantoms of the radiation intensities due to the 2 Gm. bomb at Westminster Hospital Annex, Wilson studied the relative magnitudes of the primary and secondary radiations comprising the total depth dose. It is shown that the intensity measured at a depth in wax is nearly always less than that measured at a corresponding position in air; therefore scatter does not compensate for absorption in this case. Even at depths as great as 10 cm., more than 80 per cent of the total dose consists of forward directed radiation of a quality that appears to differ but little from that of the primary radiation received by the skin. A small port of entry may be of value in the construction of a radium bomb if it is most desirable to use only the hardest radiations at a depth, since such an arrangement helps to reduce the amount of softer scattered radiation to a minimum.

British Journal of Tuberculosis, London

30: 1-52 (Jan.) 1936

Problems in Applied Medicine: Why Can Some Individuals Develop Extensive Tuberculous Lesions Without Serious Impairment of Health? M. Davidson.—p. 3.
Treatment of Pulmonary Tuberculosis by Phrenic Evulsion. G. R. B. Purce and B. R. Clarke.—p. 9.
Some Observations on Plombage Operation in Pulmonary Tuberculosis. W. Behrens.—p. 17.
*Perifocal and Traumatic Hemorrhages in Pulmonary Tuberculosis. W. Pagel and D. MacCallum.—p. 25.
Sub Jove Frigido. R. C. Wingfield.—p. 32.
Blood Sedimentation Test. A. K. Miller.—p. 39.

Perifocal and Traumatic Hemorrhages in Pulmonary Tuberculosis.—Pagel and MacCallum state that the varying and complicated mechanism of pulmonary hemorrhages in tuberculosis has heretofore received inadequate attention. It seems desirable to collect cases providing anatomic proof of hemorrhages, in which there is no evidence of the simple rupture of a cavity aneurysm or of a vessel with tuberculous involvement of the wall. They report two cases. 1. A case of fatal hemoptysis in pulmonary tuberculosis did not show the simple condition of the rupture of a cavity aneurysm but disseminated perifocal and intrafocal hemorrhages, which must be referred to allergic hypersensitiveness associated with the process of recent liquefaction. A small aneurysm, only microscopically visible in an early cavity, like the capillary alterations in the other foci, appeared to have developed rapidly during recent processes of liquefaction and therefore was not to be regarded as accidental. 2. This case permitted an examination of the influence of a trauma on old tuberculous foci, demonstrating the hemorrhagic destruction of the latter. The tissue of the foci appeared to be more fragile than the normal pulmonary tissue, the latter showing the most marked destruction in the neighborhood of the foci (perifocal hemorrhage).

British Medical Journal, London

1: 1-44 (Jan. 4) 1936

Fractures of Spine. S. T. Irwin.—p. 1.
Harelip. H. D. Stephens.—p. 5.
Treatment of Asthma by Ultraviolet Light. G. H. Day.—p. 8.
Spinal Anesthesia. L. Doyle.—p. 11.
Spontaneous Rupture of Urinary Bladder: Report of Case. W. Morton.—p. 14.

Glasgow Medical Journal

7: 1-48 (Jan.) 1936

Therapeutic Outlook in Organic Nervous Diseases. D. K. Adams.—p. 1.

Journal of Pathology and Bacteriology, Edinburgh

42: 1-328 (Jan.) 1936

*Carbon Tetrachloride Cirrhosis in Relation to Liver Regeneration. G. R. Cameron and W. A. E. Karunaratne.—p. 1.
Pathology of Tropical Typhus (Rural Type) of the Federated Malay States. R. Lewthwaite.—p. 23.
*Cultivation of Streptococci from Pasteurized Milk. H. D. Wright.—p. 31.
Further Investigations on Causal Agent of Bovine Pleuropneumonia. F. F. Tang, H. Wei and J. Edgar.—p. 45.
Studies on Bacillus Typhosus in Shanghai. R. C. Robertson and H. Yu.—p. 53.
Australian Epidemic of Encephalomyelitis (X-Disease). J. R. Perdrau.—p. 59.
Hematologic Variations in Fifty Normal Adult Males. M. McGeorge.—p. 67.
Occurrence of Typhoid Bacilluria in a Horse. G. F. Petrie.—p. 75.
Relation Between Growth Rate of Tar Warts in Mice and Their Corresponding Autografts. J. C. Mottram.—p. 79.
Histology of Sex Organs of Ovariectomized Rats Treated with Male or Female Sex Hormone Alone or with Both Simultaneously. V. Korenchevsky and M. Dennison.—p. 91.
Bone Marrow in Brown-Pearce Carcinomatosis of Rabbit. J. W. Orr.—p. 105.
Pathology of Synovial Effusions. D. H. Collins.—p. 113.
Effect of Renal Denervation on Blood Pressure in Experimental Renal Hypertension. W. M. Arnott and R. J. Kellar.—p. 141.
Sarcoma Production in Mice by Single Subcutaneous Injection of a Benzoylamino Quinoline Styryl Compound. C. H. Browning, R. Gulbransen and J. S. F. Niven.—p. 155.
Comparison of Changes Induced by Some Pure Estrogenic Compounds in Mammae and Testes of Mice. H. Burrows.—p. 161.
Effect of Estrone Administration on Mammary Glands of Male Mice of Two Strains Differing Greatly in Their Susceptibility to Spontaneous Mammary Carcinoma. Georgiana M. Bonser.—p. 169.
Systematic Position of Morgan's Bacillus. K. F. Rauss.—p. 183.
*Pathology of Rhinosporidiosis. W. A. E. Karunaratne.—p. 193.
Rare Type of Diffuse Carcinoma of Pancreas with Unusual Metastases. R. A. Willis.—p. 203.
Epidemic of Pasteurella Infection in a Guinea-Pig Stock. Joyce Wright.—p. 209.
Inapparent (Subclinical) Infection of Rat with Louping Ill Virus. F. M. Burnet.—p. 213.
Assay of Antigens, with Especial Reference to Staphylococcus Toxoid. Margaret Llewellyn Smith.—p. 227.
Staphylococci from Animals, with Particular Reference to Toxin Production. F. C. Minett.—p. 247.
*Effect of Temporary Stoppage of Blood Supply of Rat Tumors. H. Chambers and G. M. Scott.—p. 265.
Infection of Rhesus Monkey (Macaca Mulatta) and Guinea-Pig with Virus of Equine Encephalomyelitis. E. W. Hurst.—p. 271.
Variable Sensitivity of Different Sites of Skin of Mice to Carcinogenic Agents. J. M. Twort and C. C. Twort.—p. 303.

Carbon Tetrachloride Cirrhosis in Relation to Liver Regeneration.—Experiments by Cameron and Karunaratne show that carbon tetrachloride in small amounts produces marked lobular degeneration and necrosis of the liver, followed at once by proliferation of the unaffected liver cells and complete repair, in the case of the rat, in from one to two weeks. The smallest amount necessary to produce histologic evidence of damage to the rat's liver is about 0.025 cc. per kilogram of body weight, a dose within the limits of the therapeutic dose for man. Multiple exposures call forth in the rat's liver

changes the nature of which is determined by the size of the dose and the interval between successive doses. A certain minimal amount, greater than the minimal toxic dose for the liver, must be given at short intervals to induce permanent effects. When there is time for recovery after each dose, carbon tetrachloride can be administered indefinitely without producing any permanent alteration. If, on the other hand, time spacing does not allow of complete recovery after each dose, cirrhosis of the liver results. There are two stages in the development of carbon tetrachloride cirrhosis: (1) a precirrhotic reversible stage, with histologic features indistinguishable from actual cirrhosis, and (2) a cirrhotic stage, with a finely or coarsely granular liver. In the former, the liver reverts to normal on discontinuance of the drug. Restoration is due mainly to proliferation of liver cells, although it seems that fibrous tissue bands may actively disappear. The cirrhotic stage is characterized by the permanent nature of the perilobular fibrosis, which persists for months after the carbon tetrachloride has been discontinued. There is also diminished or absent growth capacity of the liver cells in autoplastic liver grafts and impairment of restoration in the liver as a whole after partial hepatectomy. There is evidence that in at least two other types of experimental cirrhosis (tar and sudan III) similar stages in the progress of the condition may be recognized.

Streptococci from Pasteurized Milk.—Wright declares that the presence of organisms of the Streptococcus thermophilus group is an important cause of the difficulties in the bacteriologic examination of pasteurized milk. The standard mediums are unsuitable for the cultivation of the majority of these organisms. The growth requirements of different strains show considerable variation, some growing well on infusion mediums while others need the addition of milk, lactose or sucrose. Fermentable disaccharides (lactose and sucrose) facilitate the growth of the more fastidious strains, but the slowly fermented disaccharide maltose and the fermentable monosaccharides (dextrose, fructose and galactose) do not. Infusion agar is a better basis for the preparation of mediums for the cultivation of these organisms than either standard or yeastrel agar, as the colonies are considerably larger. The occurrence of minute colonies in routine milk counts may also be dependent on the presence of other organisms with special requirements in regard to temperature and aeration during incubation.

Pathology of Rhinosporidiosis.—Karunaratne points out that rhinosporidiosis is a disease, almost invariably in men, occurring in India, Ceylon and North and South America. It usually affects the nasal cavity, less frequently the conjunctiva and rarely other sites. It produces a friable polypoid mass that bleeds easily. Only fifty-three cases have been reported in the literature, although the author has seen thirty-four instances during the last thirteen years. He discusses the structure and life history of Rhinosporidium and the morbid anatomy and the histology of the lesion. In the nose the polyp tends to become obstructive. Often a well marked coryza precedes and accompanies the obstruction. The discharge, which is thin and mucoid and sometimes blood stained, usually contains both spores and sporangia. Epistaxis is seen in only a few cases, and a definitely purulent discharge is rare. When the growth occurs in the nasopharynx, it may hang downward and cause difficulty in swallowing. In the conjunctiva the tumor readily attracts attention, and, in the few cases in which infection of the lacrimal sac had occurred, obstruction resulted from blocking of the sac by growth and was accompanied by suppurative dacryocystitis. A tendency to recurrence is a characteristic feature. The tendency to recurrence would suggest that the parasite undergoes its complete cycle of development in the human body without the intervention of an intermediary host. Another important characteristic is the long history. Tirumurti mentions an instance in which the patient had the infection for twenty years, and in Knowles' case the infection had lasted sixteen years. The infection remains localized to the original site, though nearby sites may become infected, but there is no evidence of generalized hematogenic dissemination. Nothing definite is known about the modes of infection and transmission. As the nose and eye are the commonest sites, it is possible that the organism is transmitted in dust or water. The presence of infection in nearby sites would point to the possibility of autoinoculation. It has not been possible to grow the organism in artificial mediums, with the doubtful exception reported by Ashworth, nor has it been possible to transmit the infection to the lower animals. Infection in farm animals has been observed and it is possible that there is some definite etiologic relationship between the disease as it occurs in man and in the lower animals.

Effect of Stoppage of Blood Supply of Rat Tumors.—A strain of Jensen's rat sarcoma, which normally progresses and causes death in more than 90 per cent of the animals, was used by Chambers and Scott in temporarily stopping the blood supply to the tumor (for from two to four hours) with as little local damage as possible. An ordinary large screw clip was used, the metal bars of which were covered with thick rubber tubing holding a water jacket. Only one water jacket was used; the other side of the clip was left empty. The temporary stoppage of the circulation of actively growing Jensen's rat sarcoma, when effectively carried out, often caused the disappearance of the tumor. This appeared to be mainly dependent on the complete block of the vascular supply, but also to some extent on the amount of surrounding tissue included in the clip and on the size and rate of growth of the tumor at the time of treatment. After the disappearance of the tumor the rats are invariably immune to inoculations of Jensen's rat sarcoma. The total number of tumors treated was 251, of which seventy-three disappeared. A 30 per cent spontaneous disappearance is out of the question, as records show that spontaneous regression of this tumor is rare.

Journal of State Medicine, London

44: 63-124 (Feb.) 1936

Undulant Fever: A Retrospect. J. Eyre.—p. 64.
The Medical Profession of the Future. C. S. Thomson.—p. 89.

Lancet, London

1: 67-126 (Jan. 11) 1936

Carcinoma of Esophagus: Question of Its Treatment by Surgery. G. G. Turner.—p. 67.
Intermittent Claudication and Its Quantitative Measurement. H. T. Simmons.—p. 73.
Lumbosacral Strain. G. A. G. Mitchell.—p. 75.
*Treatment of Dysmenorrhea by Alcohol Injection. A. A. Davis.—p. 80.
Whooping Cough: Value of Specific Vaccine in Treatment. N. D. Begg and Margaret F. Coveney.—p. 82.

Treatment of Dysmenorrhea by Alcohol Injection.—Davis states that the object of injecting alcohol for the relief of dysmenorrhea is to block the nerve pathway to the uterus at its nearest accessible point. The portion of this pathway which most conveniently lends itself to external intervention is the pelvic plexus of Lee-Frankenhauser, which concentrates most of the uterine nerve supply in a comparatively small area. With the patient in the lithotomy position and anesthetized by the sodium salt of a barbituric acid derivative, the cervix is seized with volsella and retracted toward the left. The right fornix is further exposed with the aid of a flat lateral retractor. A long graduated gasserian needle is then passed horizontally through the vaginal mucosa at the side of the cervix for a distance of 0.5 cm. and the retractor is removed. The needle is now passed backward and outward for approximately 1.5 cm. at an angle of 45 degrees to both the sagittal and coronal planes and guided by a finger in the rectum to a point 0.5 cm. from the side of the rectal ampulla. The needle is then withdrawn for 0.5 cm., and 1 cc. of an 85 per cent solution of alcohol is injected, the needle point being kept slightly but continually moving. The same procedure is repeated on the other side. Perforation of the rectum with consequent cellular infection is avoided by making the injection 1 cm. away from that organ, as calculated from the internal finger. Injury to the ureter is prevented by keeping the needle point lateral to it. The uterine artery, if touched, usually slips away from the needle, but constant movement of the latter is a further safeguard. Only six cases have been treated over a sufficiently long period of time to allow conclusions to be drawn. The ultimate result was complete and apparently permanent relief, an effect which appears to indicate the superiority of this operation over ordinary dilation. The relief of dysmenorrhea which follows the

operation may be explained by interruption of sensory pathways, interruption of motor pathways and interruption of irregular ovarian influence. It is difficult to assess the relative importance of these factors, but it is probable that destruction of the sensory nerves is the predominant one. The reason for this assumption is that unilateral alcoholization of the parametrium relieves pain on that side only (Blos).

South African Medical Journal, Cape Town

9: 857-894 (Dec. 28) 1935

Some Shanghai Medical Activities. H. S. Gear.—p. 859.
The Year's Work. F. P. Bester.—p. 861.
Some Clinical Methods. P. W. J. Keet.—p. 863.
Reminiscences. J. M. Fehrsen.—p. 865.
Radium Treatment of Superficial Lesions. R. J. W. Charlton.—p. 869.
Johannesburg Hospital in Pioneer Days (1887-1890). G. J. M. Melle. —p. 872.

Japanese Journal of Gastroenterology, Kyoto

7: 179-212 (Dec.) 1935

Studies on Metabolism of Levoglucosan. T. Kimura.—p. 179.
Golgi's Apparatus of Liver in Hepatic and Renal Disturbances. Y. Imai.—p. 202.

Journal of Oriental Medicine, Dairen, South Manchuria

23: 61-84 (Nov.) 1935

Innominate and Common Carotid Arteries in Chinese. K. Miyashita. —p. 61.
Subclavian Artery in Chinese. K. Miyashita.—p. 63.
Visceral Branches of Abdominal Aorta in Chinese. K. Miyashita.—p. 65.
Sarcoma of Bladder. K. Kitagawa.—p. 67.
Anthropologic Studies on Chinese. S. Takeya.—p. 69.
Lateral Nasal Wall in Chinese. N. Toida.—p. 71.
Anthropologic Studies on Lips of Chinese. H. Hada.—p. 73.
Lower Jaw of Chinese Children: I. Mental Foramen. H. Sakai.—p. 75.
*X-Ray Diagnosis for Sterility. M. Sasaki.—p. 76.
Vital Staining of Trypanosoma Lewisi: III. Relation Between Vital Staining and Chemical Constitution or Physical Property of Dyestuff (Continued). S. Hatano and H. Takamatsu.—p. 78.
Reducing Faculty of Reductone Formed by Saccaroid. M. Sugiura. —p. 79.
Cow's Milk in Manchuria and Mongolia: V. Vitamin C. M. Sugiura. —p. 80.
Biochemical Study of Hydrocyanic Acid: II. Fluctuation of Fibrinogen Content in Blood During Hydrocyanic Acid Intoxication: (Supplement) Influence of Leukocytes During Intoxication Period. M. Fukushima.—p. 81.
Biochemical Study of Nitril Compound: VII. Fluctuation of Fibrinogen Content in Blood in Aromatic Nitril Toxication: (Supplement) Influence on Coagulation Time of Blood During Period. M. Fukushima. —p. 82.
Atmospheric Pollution in City of Dairen, Manchuria: I. Deposited Impurities in Winter. B. Tanaka and M. Takeda.—p. 83.

Roentgen Diagnosis for Sterility.—Sasaki claims that hysterosalpingography is superior to internal gynecologic examination in its exactness and certainty in the diagnosis of sterility. Results of the hysterosalpingographic diagnosis on the uterus and salpinx in his sixty-six cases of sterility were as follows: 1. Uterine hypoplasia was found in 36.4 per cent, which accounts for its importance as one of the causes of sterility. 2. Adhesion of the uterus with neighboring organs was observed in 46.9 per cent. It is inconceivable that such an adhesion is a direct cause of sterility. Its significance lies in the fact that it is one of the complications of salpinx inflammation. 3. Retroflexions and versions of the uterus were detected in 48.5 per cent. Pregnancy, however, frequently does take place in cases of flexions or versions, which fails to prove that these lesions are the cause of sterility in such a high proportion of cases. But it is still undeniable that there is some close relation between them and sterility. 4. Closure of both sides of the salpinx in 42.4 per cent and of one side in 15.8 per cent, and only 31.8 per cent of thorough penetrability of both sides of the salpinx were noted. These results explain the paramount significance of salpinx closure as a cause of sterility. 5. Adhesions of the salpinx occurred on both sides in 50 per cent, on one side in 12.1 per cent and not at all in 37.9 per cent. Further, these adhesions have a significant correlation with salpinx closure. In sterility arising from the female internal organs of generation, salpinx closure plays the most important part, followed by uterine hypoplasia. Retroflexions and versions of the uterus should elicit considerable attention.

Presse Médicale, Paris

44: 65-88 (Jan. 11) 1936

Technic of Interilio-Abdominal Disarticulation. R. Leriche and E. Stulz.—p. 65.
Transfusion of Blood from Cadaver to Human Beings. S. S. Judine. —p. 68.
Study of Erythrocyte Sedimentation in Syphilis. J. Gaté and H. Chevat. —p. 71.
*Nervous Complications from Freeing Pleural Adhesions. O.-M. Mistal. —p. 73.

Complications in Freeing Pleural Adhesions.—Mistal discusses the anatomic relations of the nerves and their points of contact in operations designed to free pleural adhesions. The phrenic and recurrent nerves are so placed anatomically as to be especially liable to injury. Lesions of the phrenic nerve usually remain obscure. Complete paralysis of the left vocal cord is the most striking effect of injury to the recurrent nerve. The brachial plexus may be injured by some routes of approach. The pains and tingling of the arms and hands that may result from such injury are temporary or permanent. The intercostal nerves may also be affected. Lesions of the sympathetic are exceptional but may occur. The usual result is Horner's syndrome. The possibility of injuring all these nerves demonstrates the dangers to which the operator is exposed and indicates the wisdom of leaving pleurolysis in the hands of the specialist.

44: 105-128 (Jan. 18) 1936

Exophthalmic Goiter. L. Justin-Besançon.—p. 105.
*Experimental Verification of Tuberculous Etiology of Erythema Nodosum. R. C. Aguirre and P. R. Cervini.—p. 110.

Tuberculous Etiology of Erythema Nodosum.—Aguirre and Cervini state that in a previous communication considerable evidence of the tuberculous nature of erythema nodosum was reported in five cases. They describe another case in which the histology and bacteriology were carefully studied. Microscopic examination of the patient's nodule showed exudative pericapillary inflammation of the skin. The fatty subcutaneous tissue and deep skin showed inflammatory nodules with polymorphonuclear leukocytic predominance and panarteritis. Direct cultures from the nodules on a semisolid medium grew slowly and the surface pellicle showed acid-alcohol resistant bacteria that caused tuberculosis and death when inoculated intraperitoneally in guinea-pigs. The culture thus obtained was reinjected subcutaneously into a tuberculin negative five months old calf, which developed tuberculosis and local lesions not unlike those of erythema nodosum. The authors feel, therefore, that Koch's postulates have been completely satisfied and that the tuberculous nature of erythema nodosum is entirely proved.

Schweizerische medizinische Wochenschrift, Basel

66: 193-216 (Feb. 22) 1936. Partial Index

Flatfoot and Arch Supports. A. Sidler.—p. 193.
High Altitude Climate. D. Michetti.—p. 196.
Efficacy of Colposcopic Diagnosis of Carcinoma. H. Hinselmann.— p. 200.
*Connections Between Certain Retinal and Spontaneous Leptomeningeal Hemorrhages. P. Karbacher.—p. 201.

Retinal and Spontaneous Leptomeningeal Hemorrhages.—Karbacher points out that retinal hemorrhages develop in many different disturbances and that their explanation is often difficult. In recent years attention has been called repeatedly to the retinal hemorrhages that occur in the course of so-called spontaneous, leptomeningeal hemorrhages. The term spontaneous in connection with leptomeningeal hemorrhages excludes the traumatic as well as the inflammatory (in infectious diseases) forms. The author describes the histologic aspects of the eyeballs and optical nerves of a patient with spontaneous leptomeningeal and retinal hemorrhages. The case belongs to the group of spontaneous leptomeningeal hemorrhages, because all other etiologic factors, particularly cardiovascular or renal ones, can be excluded. At the entrance of the optic nerves into the eyeballs there was not a trace of penetration of blood from the sheath of the optic nerve into the nerve or from the lamina cribrosa into the retina. Thus the histologic examination proves that it is unlikely that blood passed from the subarachnoidal space of the brain into the sheath of the optic nerve and from there by way of the lamina cribrosa into the eye. The case proves the simultaneous occurrence of venous stasis

in the eye in retinal and leptomeningeal hemorrhages. Nevertheless, extensive retinal hemorrhages, particularly those that penetrate into the vitreous body, are extremely rare in case of choked disk. However, since in cases of spontaneous, leptomeningeal hemorrhages bleeding into the vitreous body is rather frequent, it is difficult to connect these bleedings with choked disk. This contradiction fails to be explained and makes it appear possible that similar impairments of the vascular wall, as have been assumed for the spontaneous leptomeningeal hemorrhages, are also responsible for the retinal hemorrhages.

Policlinico, Rome

43: 183-226 (Feb. 3) 1936. Practical Section

*Parenteral Oxygen Treatment in Pulmonary Tuberculosis. E. Frola.—p. 185.
Infiltrating Stenosing Rectitis: Cases. G. Bendandi.—p. 195.

Parenteral Oxygen Treatment in Pulmonary Tuberculosis.—Frola resorted to hypodermic injections of oxygen in the treatment of pulmonary tuberculosis. The injections, at a dosage of 200 cc. per injection, are given in the subcutaneous tissues of the anterolateral region of the thigh with an apparatus such as is commonly used for the performance of pneumothorax, provided it is small, is deprived of its manometer and is connected with a supply of oxygen. The injections should be given slowly, to avoid sudden distention of the tissues or injury to the vessels, which may result in the formation of embolism, and should be repeated every other day for about a month. The author concludes that the treatment has an antitoxic as well as a favorable action on the cardiovascular and hematopoietic systems and on the general trophism of the patient. It results in disappearance of fever, increase of the blood pressure, improvement of the blood picture, formation of a greater number of erythrocytes and amelioration of the disease, which is proved by the results of the tests of allergy to tuberculosis and of the sedimentation speed of the erythrocytes, as well as by the feeling of well being of the patient and by his gaining in weight. Hypodermic injections of oxygen also control tuberculous hemoptysis and prevent its recurrence.

Prensa Médica Argentina, Buenos Aires

23: 355-418 (Feb. 5) 1936

Closing of Tuberculous Cavity by Bronchial Obstruction in Course of Artificial Hypotensive Pneumothorax: Cases. A. A. Raimondi and R. Scartascini.—p. 355.
Dynamic Significance of Bradycardia. D. Gross.—p. 365.
*Animal Charcoal in Treatment of Erysipelas. H. D. Gonzalez and M. Schteingart.—p. 371.
Concentration of Diphtheria Toxins and Toxoids by Freezing of Blood Serum. G. Elkeles.—p. 373.
Babeurre in Feeding Nurslings. J. R. Abdala and J. C. Pellerano.—p. 383.
Chylous Ascites: Case. G. A. Mórtola and J. M. Mesa.—p. 386.
Indications of Incision in Neck of Uterus in Labor. O. Arcioni.—p. 389.

Animal Charcoal in Treatment of Erysipelas.—The intravenous injections of animal charcoal have been advised by St. Jacques in the treatment of various infections (*Canad. M. A. J.* **31**:168 [Aug.] 1934; abstr. THE JOURNAL, Sept. 22, 1924, p. 948). Gonzalez and Schteingart used the injections in the treatment of erysipelas and state that the entire process follows a rapid evolution to recovery: pain and the sensation of tension of the erysipelas tissues stop, the fever abates and soon after disappears, the erysipelatous patches lose their luster and regress, the general symptoms improve, and desquamation soon and rapidly takes place. The authors inject intravenously an amount that varies between 3 and 5 cc. of a 2 per cent suspension of animal charcoal in a 10 per cent hypertonic dextrose solution. The solution of dextrose used instead of distilled water, which was the vehicle originally used by St. Jacques, makes unnecessary the refinement in the technic used by St. Jacques; namely, that "the piston, syringe barrel and needle must be paraffined beforehand to prevent clogging by the particles of carbon." Dextrose solution prevents the precipitation of the particles of carbon in the suspension and does not modify the therapeutic properties of the drug on erysipelas. The injections prepared with dextrose solution as a vehicle are easily sterilized in the autoclave and can be preserved for a long time without alteration.

Archiv für Kinderheilkunde, Stuttgart

107: 129-192 (Feb. 18) 1936

Air Filling of Cystic Cerebral Tumors in Children. P. von Kiss and I. Fényes.—p. 129.
*Chronic Constipation as Cause of Incontinentia Alvi. R. Priesel and J. Siegl.—p. 133.
Dependence of Cutaneous Tuberculin Sensitivity and of Course of Tuberculosis on Thyroid. A. Viethen.—p. 136.
*Experimental Investigations on Toxic Action of Corn Smut (Ustilago Maydis). B. Dragišić and B. Varićak.—p. 140.
*Gangrene in Scarlet Fever and Diphtheria. K. Blumberger.—p. 154.

Chronic Constipation as Cause of Incontinentia Alvi.—Priesel and Siegl report the histories of several children in whom incontinence of the feces was brought on by severe constipation. The development of this form of incontinence is about as follows: For some reason a constipation develops which constantly increases in severity, so that a thorough evacuation of the bowel becomes impossible without artificial aid in the form of purgatives or enemas. In the presence of a continuous urge to defecation, small quantities of feces are constantly given off by the overfilled ampulla of the rectum. In some cases, small amounts of feces with an admixture of mucus are found around the anus. The mucus is probably secreted by the rectum in response to the irritation of the coprostasis. The treatment should consist in the evacuation of the bowel by means of an enema, and after that the medicinal regulation of bowel movements is indicated until they have become normal again.

Toxic Action of Corn Smut.—Dragišić and Varićak point out that corn smut (ustilago maydis) has an action similar to that of ergot and that it is used as an abortifacient in the popular medicine of some regions. They report their experimental studies on the toxic effects of corn smut. They poisoned mice by means of the oral as well as the subcutaneous administration of the substance and found that it exerts a severe toxic action. They were also able to corroborate the clinical aspects of ustilaginism. The administration of corn smut resulted in manifestations similar to those produced in experimental ergot poisoning, except that the former also produced chronic and tonic convulsions; that is, symptoms which had never been observed in ergot poisoning. The similarity between the toxic action of the two substances indicates the presence of ergotamine-like substances in corn smut.

Gangrene in Scarlet Fever and Diphtheria.—According to Blumberger, gangrene of an extremity or of another part of the body is comparatively rare after scarlet fever and diphtheria. However, there is a milder form of gangrene, which involves only the skin and produces necrosis but finally ends in cure. After discussing the possible pathologic anatomic foundations of these forms of gangrene, namely, embolism, thrombosis, toxic impairment of the capillaries, endothelial proliferations or direct impairment of the skin, the author shows that on the basis of former reports it may be said that in case of scarlet fever gangrene develops most often during the third or fourth week after the onset. In diphtheria likewise the embolic form of gangrene has been known to develop during the third week. However, although there is a certain uniformity in the time of appearance of the gangrene the localization shows considerable variety, but there are also sites of predilection; namely, the lower extremities. The author describes two cases of gangrene that he observed. The first one concerned a boy with scarlet fever, who rapidly developed gangrene of the left leg and also gangrenous areas on the right thigh and foot. This case had a fatal outcome, but consent for a necropsy was withheld. It is assumed that on the left side an embolic closure must have developed above the branching of the popliteal artery. The gangrenous areas on the right extremity must have been caused by embolisms of smaller cutaneous vessels. The second case concerned a child, aged 3 years, who had diphtheria and who developed gangrenous areas on both lower extremities. This case also had a fatal outcome. The bacteriologic and histologic examination of tissues from the gangrenous areas indicated that the gangrene developed in the presence of a streptococcic infection with diphtheria and as the result of hemorrhages, which in turn were caused by toxic impairment of the vessels.

Deutsche medizinische Wochenschrift, Leipzig

62: 289-328 (Feb. 21) 1936. Partial Index

Therapy with Hormones and Vitamins. G. von Bergmann.—p. 289.
Causal Therapy of Asthma. F. Mattausch.—p. 293.
Therapy of Cirrhosis of Liver. F. Oefelein.—p. 298.
*Treatment of Scurvy. H. Conrad.—p. 306.

Treatment of Scurvy.—Conrad reports the case of a man, aged 70, whose diet had consisted almost exclusively of white bread, canned vegetables and coffee. The patient appeared undernourished, had a subicteric color and had blood effusions on both lower extremities, on the left hand and on the right side of the chest. There also were hemorrhages from the oral mucous membrane and from the gums, and the teeth were loose and carious. Since the symptomatology together with the anamnesis indicated scurvy, the patient was given intravenously 350 mg. of cevitamic acid and on the following five days 150 mg. twice daily. Considerable improvement was noticeable on the fourth day. During these first days of the treatment the food was not especially rich in vitamin C. However, when the intravenous injection of the cevitamic acid was replaced by the oral administration in tablet form, the patient was given lemon juice and fresh vegetables. After two weeks the cevitamic acid medication was discontinued. After another three weeks the patient was discharged as cured. The author stresses that in severe cases of scurvy it is advisable to begin the administration of vitamin C in the form of intravenous injections, since this makes possible the administration of larger and more effective doses than would be the case with oral administration.

Deutsche Zeitschrift für Chirurgie, Berlin

246: 393-512 (Feb. 24) 1936. Partial Index

*Mesenteric Lymphangitis. N. Kleiber.—p. 393.
Results with Riveting in Twenty-Seven Cases of Fractures of Neck of Femur. W. Buchheim.—p. 439.
Experimental Studies on Fat Embolism Therapy. E. Rappert.—p. 449.
Influence of Pain on Breathing in Laparotomized Patients. W. Capelle.—p. 466.

Mesenteric Lymphangitis.—Kleiber presents observations on mesenteric lymphangitis in the surgical clinic of Pribram (Berlin), for the last ten years. Calcification of necrotic lymph nodes may follow other than tuberculous inflammation. The lymph current is not always constant and may reverse its pendulum-like movement. By placing a depot of isamine blue under the serosa of the root of the mesentery and then producing an irritation of the corresponding coil of intestine, the author observed the reversal of the lymph current away from the root of the mesentery and in the direction of the intestine. This experiment furnishes an explanation of the origin of the so-called secondary abdominal diseases, as well as of the recurrences of local processes in tissues made allergic by previous inflammatory processes. The author was able to isolate bacteria from the lymph nodes in a number of cases, the majority of which were tonsillitis. In mesenteric lymphangitis a tendency to recurrence, particularly in association with recurrent attacks of tonsillitis, is a characteristic feature. Whitish scars and strands in the mesentery are the anatomic signs of an old lymphangitis. The clinical picture of mesenteric lymphangitis resembles that of acute appendicitis. The localization of the pain corresponding to the inflamed nodes in the root of the mesentery is higher in the neighborhood of the navel. It is the cause of the so-called navel colic of children. Acute lymphangitis is accompanied by a rise in temperature and leukocytosis. In about 50 per cent of the cases there was found at operation a serous or a slightly turbid exudate. The author has observed fulminant cases with signs of a general peritonitis without any tendency to localization. These cases terminated fatally regardless of whether the patients were operated on or not. As a rule, acute cases with localization principally in the mesentery of the ileocecal segment subside in the course of a few days, whether operation is performed or not. They display, however, a tendency to recurrence. The author considers an appendectomy indicated in these cases, even if the appendix does not show pathologic alterations. The lymphatic tissue of the latter may be the focal lesion. Signs of tonsillar involvement or a history of recurring attacks of tonsillitis accompanied by abdominal complaints is an indication for tonsillectomy. It frequently results in permanent freedom from abdominal complaints. The author obtained more encouraging results from protein therapy than from roentgen irradiation, diathermy or short waves in chronic neglected cases that recurred even after tonsillectomy.

Klinische Wochenschrift, Berlin

15: 217-256 (Feb. 15) 1936. Partial Index

Rôle of Irritation in Pathogenesis of Human Cancer. S. Peller.—p. 217.
Fertility Vitamin E. E. Gierhake.—p. 220.
Carotene-Vitamin A Metabolism of Human Fetus. H. Wendt.—p. 222.
*Paradoxical Action of Quinine. G. Budelmann and G. Krauel.—p. 225.
*Influence of Cevitamic Acid on Coagulation of Blood. L. Cotti and P. Larizza.—p. 227.
Type Constancy of Diphtheria Bacilli. K. W. Clauberg, W. Helmreich and R. W. Vierthaler.—p. 231.

Paradoxical Action of Quinine.—Budelmann and Krauel point out that large and moderate doses of quinine usually elicit a reduction in the temperature but that occasionally an increase in temperature is observed. The cause of this so-called paradoxical action of quinine is not known as yet. They cite a number of authors who have observed cases of paradoxical quinine action and describe a case of their own. The woman had a mitral stenosis and always showed an increase in temperature after the administration of quinidine. She also had a thyrotoxicosis. To determine whether hyperthyroidism plays a part in the paradoxical action, the authors gave small doses of quinidine to several patients with exophthalmic goiter, but they never observed the paradoxical quinine action. The patient was found to be sensitive to a number of medicaments. Her serum was subjected to refractometry. The curve in which the refractometric values were recorded ran almost parallel with the temperature curve. The authors assume that in the case under consideration the paradoxical quinine action was the result of a quinine hemolysis.

Influence of Cevitamic Acid on Coagulation of Blood.—Cotti and Larizza find that parenterally administered vitamin C (from 50 to 100 mg. daily for from five to eight days) exerts a considerable influence on blood coagulation. On the basis of observations on normal persons and on persons with various types of hemorrhagic diathesis (including hemophilia) it may be concluded that vitamin C promotes coagulation. However, the authors found that this action on the coagulation can be ascribed neither to changes in the protein constituents of the plasma nor to changes in the calcium and magnesium contents. They detected considerable quantitative changes in the coagulation ferments, but they concede that further studies will be necessary to prove whether and in what manner the coagulation ferments play a part in the action of vitamin C on the coagulation.

Münchener medizinische Wochenschrift, Munich

83: 257-298 (Feb. 14) 1936. Partial Index

Congenital Amputation, Amniotic Ligature, Hypoplastic Limbs, Peromelia. G. B. Gruber.—p. 259.
Action of Morphine-Scopolamine Preparation on Evipan and Its Change into Permanent Anesthesic. E. Redenz.—p. 261.
Progress in Recognition and Treatment of Brucella Abortus Infection. R. Fischer and P. Schenk.—p. 263.
*Treatment of Crural Ulcer. Alke.—p. 270.
Silver Powder in Treatment of Female Gonorrhea. Trenk.—p. 271.

Treatment of Crural Ulcer.—Alke first treats the existing eczema by rubbing in Wilkinson's ointment with a wooden spatula. The use of this instrument has the advantage that the scales are removed more effectively and the ointment reaches the diseased skin. The patient is told to continue this treatment at home once or twice a day. After a week the eczema, although not as yet entirely cured, has usually improved to such an extent that treatment of the ulcer may be begun. First the ulcer is cleaned by means of benzine. Then a ball of cotton is grasped with forceps, dampened with water and dipped into resorcinol powder. This is dabbed on the ulcer until the granulations have an opaque appearance. Then after some ointment (except zinc paste) has been applied and a thin layer of gauze placed over the wound, an air-tight adhesive bandage is put on. The patient is told to return after six or eight days, when the wound is treated once more with resorcinol powder and again bandaged air tight. The treatment

is repeated at intervals of six or ten days and cure is usually obtained after several weeks. In some cases healing does not progress and a tuberculous nature may be suspected. For the latter cases the author recommends roentgen irradiations of an intensity of one third of the unit skin dose to be applied at weekly intervals. After each irradiation the ulcer is bandaged air tight, but metal ointments must be avoided in the course of roentgen irradiations. It is important that the bandage over the ulcer is air tight, and, if it should become loosened as the result of a reduction in the swelling of the leg, it must be replaced. After the ulcer has healed, the after-treatment is begun. The patient is told to massage the area once or twice daily with an ointment. Wilkinson's ointment has been found most effective. This after-treatment must be continued until the formation of scales ceases completely and the skin has become soft. Usually this takes two or three months and should be resumed again as soon as scales commence to form. If the after-treatment is properly carried out, the cure is usually permanent.

83: 299-338 (Feb. 21) 1936. Partial Index

Comparative Studies on Most Common Disinfectants. H. Kliewe and E. Maier.—p. 299.
Atelectasis, Massive Pulmonary Collapse and Related Postoperative Conditions. Y. Henderson.—p. 305.
Positional Nystagmus. L. B. Seiferth.—p. 310.
*Significance of Menstrual Cycle for Calculation of Date of Birth. F. A. Wahl.—p. 311.
*Localized Atrophy and Hyperplasia of Subcutaneous Fat Tissues Following Insulin Therapy (Insulin-Lipodystrophy): Case. G. Dinkler.—p. 312.
Vogan (Vitamin A) Therapy of Hyperthyroidism. H. E. Dietrich.—p. 313.

Menstrual Cycle and Date of Birth.—Wahl says that, since the exact date of conception is often difficult to determine, the calculation of the date of delivery is usually based on the first day of the last menstruation; that is, it is customary to add 280 days to this date. However, the author observed that the date thus computed only rarely coincides with the actual date of delivery and also that the period of 280 days is too short in many cases. He also gained the impression that the date of birth is to a certain extent dependent on the menstrual cycle. He made studies in 5,000 obstetric cases, investigating (1) how often a mature child is born 280 days after the first day of the last menstruation and (2) whether there is a relationship between the computed date of birth and the menstrual cycles. Summarizing his observations, he says that a mature child is born after 280 days in 65 per cent of women with a cycle of twenty-eight days. However, in women in whom the menstrual cycle is longer than twenty-eight days the delivery takes place at a later date in more than 75 per cent, whereas in women with a menstrual cycle of less than twenty-eight days the calculated date is not reached in approximately 80 per cent. The author concludes from these observations that, in women with a menstrual cycle of twenty-eight days or longer, measures to induce delivery can be postponed for a while in case the gestation has gone beyond the calculated term, whereas in women with a short menstrual cycle it is advisable to take measures sooner. Moreover, in forensic problems in which the average length of pregnancy has to be estimated, the dependence of the length of the period of gestation on the length of the menstrual cycles should be given consideration.

Atrophy and Hyperplasia of Fat Tissue After Insulin Therapy.—Dinkler points out that, whereas some investigators have observed atrophy of the subcutaneous fat tissue after insulin therapy, cases of hyperplasia of the fat tissues seem to be less frequent. He has observed a mixed form of lipodystrophy, namely, atrophy and hyperplasia, side by side. A diabetic woman gave herself one injection of insulin daily into each thigh. In the course of this treatment there developed in the upper parts of the thighs deep depressions indicative of atrophy of the subcutaneous tissues, and immediately below these depressions there appeared cushion-like areas of hyperplasia. The author points out that both forms of lipodystrophy, the atrophic as well as the dystrophic, may be avoided by frequent change of the sites of injection and perhaps also of the insulin preparation.

Wiener klinische Wochenschrift, Vienna

49: 161-192 (Feb. 7) 1936. Partial Index

History of Male Sex Hormone and Its Effects on Mammals and on Human Subjects. E. Steinach.—p. 161.
Hormone Therapy of Habitual Abortion. H. Kahr.—p. 172.
Experiences with Freund's Cancer Diagnosis. Berta Benda and J. Kretz.—p. 174.
*Transitory Influx of Bacteria into Blood Stream After Tonsillectomy. J. Fischer and F. Gottdenker.—p. 177.
Atypical Onset of General Miliary Tuberculosis. H. Schipper.—p. 177.

Bacteria in Blood Stream After Tonsillectomy.—Fischer and Gottdenker maintain that it has long been recognized that after tonsillectomy old processes, such as nephritis, polyarthritis or endocarditis, may flare up again or that septicemias may develop. In order to determine whether bacteria enter the blood stream after a tonsillectomy and whether these can be considered the cause of the aforementioned disorders, they made bacteriologic studies on the blood of fifty-one patients who had undergone tonsillectomy. They detected bacteria (staphylococci, streptococci or pneumococci) in the blood stream of sixteen of the patients. They observed that the bacteremia reached its peak two hours after the operation and completely disappeared again from twelve to twenty-four hours after the intervention. They conclude that this bacteremia is neither unusually rare nor to be regarded as a threatening sign.

Zeitschrift für klinische Medizin, Berlin

129: 363-498 (Feb. 8) 1936. Partial Index

*Subcutaneous Nodules in Chronic Arthritis: Etiology of Articular Rheumatism. G. Katz.—p. 363.
*Is Elimination of Hippuric Acid Following Tolerance Test with Benzoate a Useful Test for Hepatic Function? D. Adlersberg and H. Minibeck.—p. 392.
Behavior of Sorbose in Metabolism: Resorption and Elimination of Sorbose and Its Action on Sugar Content of Blood and Urine. H. Grieshaber.—p. 412.
*Id.: Antiketogenic Action of Sorbose in Diabetes Mellitus. H. Grieshaber.—p. 423.
Tests on Quantitative Irritability of Vasomotor Centers in Various Forms of Hypertension. W. Raab and F. K. Redlich.—p. 455.

Subcutaneous Nodules in Chronic Arthritis and Articular Rheumatism.—Katz points out that nodal rheumatism is an occasional accompanying symptom of acute articular rheumatism. Small and large nodules develop during the articular disorder in the subcutaneous tissue, particularly at the sites at which the subcutaneous tissue is near the bone; that is, where the fat tissue is slight, on the forehead, on the scalp, along the vertebral column, on the ulna, on the tibia and on the back of the hands and feet. They frequently disappear rapidly. Histologic examination discloses that these nodules are neoplastic formations in the connective tissue. The author points out that Klinge has shown in studies on febrile rheumatism that these rheumatic granulomas may appear anywhere in the mesenchymal tissue (cardiac muscle, joints, tendons and the vascular and neural connective tissue). Although there is an extensive literature on these nodules in acute articular rheumatism, little has been said about nodule formation in chronic arthritis, and if they appear they are often referred to as gout nodules. The author reports a number of cases in which chronic articular rheumatism and nodule formations were present. He believes that the chronic inflammatory irritations in the subcutaneous connective tissue, which lead to nodule formation at certain sites, may be caused by either the different organisms and their toxins, which produce the nonspecific articular rheumatism, or by the spirochetes of yaws and syphilis. Aside from the multiformity of the causal agents, the aspect of the disorder is always the same. The author thinks that his observations are a new proof for the opinions expressed by Klinge and Weil; namely, that articular rheumatism is not always caused by the same virus but that from the point of view of the theory of allergy a reaction mechanism of the connective tissue is responsible. The bacterial toxins produce in the sensitized body a hyperergic reaction, which in turn leads to granuloma formation, the latter being perhaps further promoted by predisposition or mechanical factors (trauma).

Tolerance Test with Sodium Benzoate for Hepatic Function.—Adlersberg and Minibeck investigated the reliability of the sodium benzoate tolerance test for the hepatic function in normal persons, in patients with various hepatic disturbances and in patients with other internal diseases. One

hour after breakfast (coffee and toast) the patient is given 5.9 Gm. of sodium benzoate dissolved in 30 cc. of water and then he drinks an additional 100 cc. of water. The patient voids the bladder immediately after this and again four times at hourly intervals. Each one of the four portions of urine is examined for its hippuric acid content. The authors summarize the results of their tests: 1. In patients with disease of the hepatic parenchyma, the hippuric acid elimination is reduced. 2. The same is true of patients with mechanical closure of the bile passages, cardiac decompensation, anemia, cachectic conditions and so on. 3. When there are disturbances in the hepatic parenchyma it is probably the synthesis of the hippuric acid that is impaired, but in the other disorders the resorption or the elimination is probably defective. So far it has been impossible to differentiate a reduced synthesis of hippuric acid from a reduced elimination and a disturbed resorption of the sodium benzoate. 4. Thus the hippuric acid test is not suited for the differentiation of an impairment of the hepatic parenchyma from other disorders of the liver, but it does indicate whether a disorder of the liver is progressing or disappearing. 5. Even if the test period is prolonged to six or twelve hours, the differential diagnostic value of the test is not improved.

Antiketogenic Action of Sorbose in Diabetes Mellitus.—Grieshaber found that, if patients with diabetes mellitus (with or without insulin treatment) are given twice or three times daily 10 or 20 Gm. of sorbose, their acetone elimination can be reduced to one half or one third within a few days. Sorbose has a better antiketogenic action than corresponding amounts of levulose. In this respect its action is about like that of dextrose, but its assimilability is inferior to that of several other sugars. If a part of the carbohydrates of the food (bread) is replaced by equivalent amounts of sorbose, the elimination of the ketone bodies is reduced. Carbohydrate tolerance, blood sugar content and glycosuria are not impaired by the addition of sorbose to the food, as is frequently the case with other carbohydrates when their addition to the diet becomes necessary on account of acidosis. The addition of sorbose permits a higher caloric diet, particularly the more extensive use of fats, in diabetic patients with a tendency to acidosis. Under certain conditions it may permit a reduction or a complete cessation of the insulin medication. However, the action of equal amounts of sorbose gradually decreases and for this reason its intermittent use is advisable. Moreover, there are cases with slightly increased formation of ketone bodies which are refractory to sorbose. Sorbose can be used for sweetening purposes for the food of diabetic patients.

Zeitschrift für Krebsforschung, Berlin

43: 255-336 (Feb. 8) 1936. Partial Index

Influence of Diet on Growth of Inoculated Tumors: IX. Influence of Condiments. W. Caspari.—p. 255.
*Trichinosis and Cancer. W. Schmidt-Lange.—p. 264.
Chemistry of Carcinoma. A. von Christiani.—p. 272.
*Fate of Cancer Cells in Lung. G. F. W. Kost.—p. 291.
Carcinoma on Basis of Extensive Endometriosis. R. Hanser.—p. 306.

Trichinosis and Cancer.—Schmidt-Lange states that it has been known for a long time that trichinosis and cancer may concur in human subjects. Moreover, it has been proved in animal experiments that malignant tumors may be produced by some parasites (Cysticercus fasciolaris, the larval form of Taenia crassicollis). To be sure, trichinellae have hitherto not been recognized as a causal factor of malignant tumors, and the concurrence of trichinosis and cancer in human subjects has been designated as an accidental occurrence. However, the author thinks that the observation of the simultaneous appearance of severe trichinosis and sarcoma in a white mouse indicates an etiologic relationship between the two processes, especially since the condition of the tumor indicated a time relation between the two conditions. The location of the primary tumor in an organ not involved in the trichinella infestation makes it appear likely that either the numerous young trichinellae that invaded the liver with the blood stream produced an irritation like that of a foreign body, or the waste products of disintegration and metabolism, which, in case of such a severe infestation, enter the vital organs, were the cause of the cancer formation. The author considers the trichinellae not a cancer cause in the narrow sense of the word, such as he had discussed in former studies on plant cancer and Rous sarcoma, but rather one of the various factors ("polyetiology" according to Askanazy) that play a part in the etiology of the tumor cell.

Fate of Cancer Cells in Lung.—Kost shows that three conditions may be differentiated in cancer cell embolism: 1. The inflow of the cells without a recognizable reaction. 2. The attachment of the cancer cells with fibrin precipitation and thrombus formation, in which case the cells are destroyed or at least do not grow further. 3. The formation of a true metastasis; that is, the ingrowth of the carcinoma through the vascular wall and into the surrounding tissues. Once the tumor cells have reached the blood stream, they are intercepted at the nearest blood filter. The author thinks that this explains the high incidence of hepatic metastases, pointing out that primary tumors are rather frequent in the organs belonging to the portal system. The low incidence of pulmonary metastases seems unusual and this peculiar behavior of the lung has been discussed repeatedly. After reviewing some other reports, the author describes his own studies on the lungs of twelve patients with cancer. In two cases he found that the cancer cells that had been carried into the lung had formed metastases. In a group of five cases he detected neither pulmonary metastases nor cancer cells nor definite signs of a destruction of cancer cells. He considers three possible explanations for this negative result: Either no cancer cells entered the blood stream, or they passed out again through the capillaries, or they reached only some parts of the lung and escaped detection. In a third group of five cases the author detected carcinoma cells but no metastases. The presence of these carcinoma cells may be due to the fact that they reached the lung shortly before death and thus could not form metastases or the lung exerted an inhibiting effect on their growth. In regard to the latter possibility the author points out that some of the cancer cells were covered by thrombi and showed signs of disintegration; he discusses the causes of this disintegration.

Zentralblatt für Chirurgie, Leipzig

63: 433-480 (Feb. 22) 1936. Partial Index

Closure of Duodenal Stump in Gastric Resection According to Billroth II with Donati's Instrument. A. Wald.—p. 434.
*Urinary Retention and Intestinal Atony as Unusual Accompanying Symptoms of Hemorrhage from Gastric Ulcer. E. Melchior.—p. 436.
Anesthesia with High Pressure Ether Vapor. M. Tiegel.—p. 438.
Traumatic Subcutaneous Intestinal Prolapse. G. von Benkovich.—p. 446.

Urinary Retention, Intestinal Atony and Hemorrhage from Gastric Ulcer.—Melchior says that peritoneal symptoms are usually absent in cases of hemorrhage from gastrointestinal ulcers. Impairment of the intestinal peristalsis is hardly ever observed and occasionally the motility is even increased. The author reports three cases, in two of which hemorrhage from gastric ulcer was accompanied by severe symptoms in the form of urinary retention with an overextended urinary bladder and in one of which the gastric hemorrhage was accompanied by an ileus-like intestinal atony. He is unable to give a satisfactory explanation for these complications.

Sovetskiy Vrachebnyy Zhurnal, Leningrad

Jan. 15, 1936 (No. 1) Pp. 1-80. Partial Index

Pathogenesis of Toxic Dyspepsia. G. N. Speranskiy.—p. 1.
Differential Diagnosis of Acute Icteric Cholangeitis and Acute Icteric Hepatitis. D. A. Kogan.—p. 13.
Myotonic Reaction of Pupils and Its Significance in Diagnosis of Pseudosyphilis. M. M. Gordon.—p. 22.
*Rare Localizations of Diphtheria. V. G. Eyvin and N. M. Sheynbaum.—p. 28.
Brucellosis as Source of Infection. L. S. Kuritskaya.—p. 33.

Rare Localizations of Diphtheritic Lesions.—Eyvin and Sheynbaum report an epidemic of diphtheria principally because of unusual localizations of diphtheritic lesions. Of the ninety-one cases observed, twenty-five were of the skin, fourteen of the eyes, three of the ears, thirty-four of the nose, three of the pharynx, two of the mucous membrane of the mouth and ten of the vagina. In seventy-eight the lesion was single and in thirteen combined, The lesions of the skin were of particular interest. The authors emphasize that, besides the typical

ulcerative diphtheritic lesions, there were atypical forms resembling intertrigo and impetigo-like eczema, varicella-like vesicles, abscesses and paronychias with a most varied localization. The atypical forms occurring in otherwise healthy children may be the source of a spread of infection. In their cases diphtheritic lesions always occurred in previously injured skin. They may appear as primary isolated lesions or in combination with diphtheria of other organs. The bacteriologic diagnosis was negative in half of their eye cases in spite of the clear cut clinical picture and positive effect from administration of the antitoxin. Diphtheritic otitis may run as an ordinary purulent otitis. Small doses of antitoxin (from 8,000 to 10,000 units) were sufficient to control the skin lesions. Diphtheritic lesions of the eye required repeated large doses up to 100,000 units of the antitoxin.

Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

80: 937-1068 (March 7) 1936

*Epituberculosis. M. de Bruin.—p. 961.
Gonorrhea Treatment of Women. P. J. van Putte.—p. 969.

Epituberculosis.—According to de Bruin, the clinical symptoms and the roentgenologic aspects of epituberculosis favor in many cases the explanation that this disorder should be considered an atelectasis. As a proof of this concept the author describes a case of recurring epituberculosis in which necropsy established the anatomopathologic diagnosis of atelectasis. At times the infiltration consists probably of specific tuberculous tissue that may finally be completely resorbed. In other cases, however, the changes should be considered in part or wholly perifocal reactions of a tuberculous focus. Persistent observations and extensive anatomopathologic examinations may finally determine the relative frequency with which these three modalities of the disorder occur.

Acta Medica Scandinavica, Stockholm

87: 365-598 (Feb. 18) 1936. Partial Index

Histologic Studies on Dementia Praecox. H. Marcus.—p. 365.
Aspects of Lipoidoses, Particularly of Schüller-Christian Type. H. Sundelius.—p. 402.
*Method for Obtaining Pure, Native Fibrinogen from Human Blood. E. Kylin and F. Paulsen.—p. 442.
*Reaction of Cancer Patients to Tuberculin. I. Holmgren.—p. 521.
*What Sodium Citrate Solution is Isotonic to Human Blood? Birgit Hirschlaff.—p. 530.
*Acanthosis Nigricans—Improvement After Liver Injections. B. Strandell.—p. 551.
Hepatogastrotherapy Considered in Light of Deficiency Theory of Pernicious Anemia: Is It Really a Substitutional Treatment? T. Tempka.—p. 567.

Method for Obtaining Pure Fibrinogen from Blood.—Kylin and Paulsen point out that it was determined by Theorell that in the electric field the blood proteins proceed toward the anode, but with various velocities. The albumins progress with greatest rapidity, the globulins somewhat more slowly, and the fibrinogens still more slowly. The authors used Theorell's modification of the U-shaped tube of Michaelis. A method is described by which fibrinogen in its native form can be isolated.

Reaction of Cancer Patients to Tuberculin.—The studies reported by Holmgren were made on 1,200 cancer patients during the years from 1913 to now. He found that from 70 to 85 per cent of the cancer patients are anergic to tuberculin. They give no reaction in response to the first subcutaneous injections of from 5 to 20 mg. of tuberculin and, after a series of injections has been made in the course of several weeks, they tolerate without fever subcutaneous injections of from 2,000 to 3,000 mg. of tuberculin. The author is convinced that this anergy is not produced by cachexia but by a cause as yet unknown. To intravenous injections of from 20 to 200 mg. of tuberculin the cancer patients react with chills and malaise followed by a sudden elevation of the temperature, which subsides again in from twelve to twenty-four hours. The patients become habituated to the intravenous injections as to the subcutaneous injections and quickly acquire considerable tolerance. Subcutaneous as well as intravenous injections of tuberculin exert a sedative action on the cancer pains and frequently also have a favorable influence on the general condition.

Isotonic Citrate Solution.—Hirschlaff shows that the sodium citrate solution that is isotonic to the human blood has a concentration of from 2.95 to 3.05 per cent. It can be prepared by dissolving 3 Gm. of tribasic sodium citrate in 100 Gm. of distilled water.

Acanthosis Nigricans—Improvement After Liver Injections.—A patient who had pernicious anemia and acanthosis nigricans was treated by Strandell with intragluteal injections of a potent liver extract. Not only the pernicious anemia but also the acanthosis nigricans was improved by this treatment. Later he gave injections of liver extract to a patient who had acanthosis nigricans but no pernicious anemia and found that a considerable improvement resulted. In view of the fact that acanthosis nigricans heretofore could not be improved by internal treatment, the author considers his observations on these two patients of interest, although he concedes that a definite evaluation of this treatment would be premature. He considers it possible that there are certain relations between acanthosis nigricans and the gastrohepatic physiology.

Finska Läkaresällskapets Handlingar, Helsingfors

77: 737-847 (Dec.) 1936

*Anaerobes and Urinary Calculi. B. Runeberg.—p. 737.

Anaerobes and Urinary Calculi.—Runeberg states that calculus formation in the urinary tract is often accompanied by the presence of anaerobes in the urinary sediment. Since these bacterial forms are generally rare here, demonstration of anaerobes may occasionally assist in the diagnosis of calculi, especially when typical clinical symptoms are absent and the calculus cannot be demonstrated by roentgen examination.

[78]: 1-98 (Jan.) 1936

Contribution to Morphology of Suprahyoid Muscles (Digastric Muscle, Stylohyoid Muscle, Mylohyoid Muscle). C.-J. Johansson.—p. 1.
How Is Spherical Curvature of Cornea Deformed by Direct or Inverse Astigmatism? O. Heinonen.—p. 40.
*Rat-Bite Fever Treatment in Neurosyphilis. G. E. A. Rothström.—p. 51.
*Hypoproteinemia, Stasis Albuminuria and Cardiac Edema. M. C. Ehrström.—p. 59.
*Peculiar Form of Pulmonary Tuberculosis. L. P. Dyggve.—p. 68.

Use of Rat-Bite Fever in Treatment of Neurosyphilis.—Rothström says that the advantage of sodoku treatment over malaria lies in the relative ease with which patients in the large majority of cases overcome even greater sodoku infections, because of the slow rise and lytic fall of the temperature; an objection to the treatment is its long course of about one and a half months, which makes it more expensive than malaria treatment. Since malaria treatment leads to full remission in only about 40 per cent of the cases treated, recourse to another fever treatment is desirable in the cases without remission or with incomplete remission. In sodoku treatment a small number of animals is required, the rat-bite infection can be interrupted at any time by arsphenamine preparations, the sodoku spirillum lacks neurotrophy, and the sodoku infection is dosable.

Hypoproteinemia, Stasis Albuminuria and Cardiac Edema.—Ehrström discusses two personal cases of heart insufficiency and two from the literature in which a hypoproteinemia originated on the basis of stasis albuminuria and affected the development of the picture. Stasis albuminuria occurs in about half of the cases of cardiac insufficiency, but in only about 7 per cent does it exceed the theoretical threshold for the origin of hypoproteinemia by the loss of albumin through the kidneys. The percentage of stasis albuminuria is higher in the cases with hypertension than in those without. Consideration of a hypoproteinemic factor may be called for in the interpretation of cases with disproportion between edema and other symptoms of stasis. This factor may also to a certain extent affect the treatment of cardiac insufficiency.

Peculiar Form of Pulmonary Tuberculosis.—Dyggve's patient, a woman aged 22, without family history of tuberculosis, had twice had a serious, afebrile pleurisy. Laterally in the left lung roentgen examination showed a round, sharply defined shadow of about the size of a clenched fist, which continued unchanged for about two years, resembled a neurofibroma and moved on respiration. Operation revealed that the shadow was due to a cystlike formation. On histologic examination of excised tissue tuberculous granulation tissue containing tubercle bacilli was found. Thoracoplasty was followed by recovery.